WEST MARKETING ISSUE
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Fight to Control Imported Fire Ant Advances in South

Program Started in Hard-Hit Areas of Louisiana, Georgia

WASHINGTON—The battle against the imported fire ant is gaining momentum as federal and state specialists in insect control swing into action against this insect enemy in more and more localities in the South, the U.S. Department of Agriculture reports.

The cooperative federal-state-local fight against this reddish-black, mound-building ant has begun in Louisiana and Georgia, and battle plans are shaping up in other states.

In Louisiana, where at least 3 million acres in 50 or more parishes are infested, fire ant eradication began last month in two northern parishes—Caddo and Quachita. Shortly afterward, in the Baton Rouge area, the Atchafalaya Levee Board began treatment to rid its levees of the pest.

The fire ant has come under the same coordinated attack in Georgia, where the pest has entrenched itself on at least 200,000 acres in 32 counties. The current fire ant eradication program has begun in Decatur County, heaviest infested of any county in the state.

The all-out attack in those states is being made with aircraft and motorized ground equipment, applying either 10% dieldrin or heptachlor in dry, granular form at the rate of 20 lb. to the acre.

The imported fire ant has gained a firm hold in portions of Alabama, Mississippi, Louisiana, Georgia, Florida and Texas, and to a lesser extent in Arkansas, North Carolina and South Carolina.

Committee Asks for Intensified Study Of Rice Disease

WASHINGTON—Intensified research into the nature and cause of hoja blanca, a potentially serious disease threat to the American rice crop, (Croplife, page 1, Sept. 23), was advised by the U.S. Department of Agriculture's Rice Research and Marketing Advisory Committee at its annual meeting held here recently.

Known in Spanish as hoja blanca (or "white leaf"), the disease was discovered in Florida last summer after having been under observation for several years in Cuba and Venezuela. The Florida discovery was the first in the United States.

Very little is known about the disease, but its destructive potential (yields in infected fields are known to be reduced from 25 to 50%) to the $200 million American rice crop is regarded as great.

The committee emphasized particularly the need for knowledge of how the disease is transmitted, of how all varieties and selections react to hoja blanca, and for a stepped-up breeding program to develop varieties resistant to it.

New Liquid Firm Formed in Minnesota

CROOKSTON, MINN.—Crookston Liquid Fertilizer, Inc. has been incorporated here. Thomas O. Cochrane, Thief River Falls, Minn., one of the incorporators and manager of the firm, said that a plant will be set up in Crookston and will be in operation by the first week in March. The firm will manufacture liquid fertilizers in as many as 100 analyses, he said.

Other incorporators are William Strickler, Euclid; Elmer Bredlie, Eldred; Robert Dappen, Hallock, and Charles Pester and Vernon Hawkins, both of Crookston.

Minnesota Session Gets Look At Results of NPFI Survey of Factors Influencing Farmers

By DONALD NETH
Croplife Managing Editor

ST. PAUL—Another look at the National Plant Food Institute sponsored survey of factors influencing farmers to buy and use fertilizer was given at the seventh annual Minnesota Soils and Fertilizer Short Course, held at the St. Paul Campus of the University of Minnesota Dec. 9.

Raoul Allstetter, vice president of the Institute, gave some preliminary figures gathered from Midwest states by the survey, which has been conducted for the Institute by National Analysts, Inc., Philadelphia.

The final report is not yet available, but some preliminary results, by regions, have been presented by Institute staff members in talks before industry groups this fall. (See Croplife, page 1, Oct. 7, page 1, Oct. 14, and page 1, Nov. 11.)

Mr. Allstetter gave the Minnesota group some "personal conclusions" based on his study of survey statistics from the Midwest. He emphasized that the conclusions were his own, unofficial, preliminary and possibly premature. They were:

★ Farmers believe authenticated information from their agricultural colleges, county agents, etc., and they distrust unsubstantiated claims.

★ Soils tests are a most important factor.

★ Demonstrations are approved by

(Continued on page 20)

Industrial Area Potential Cited at North Central Weed Control Meeting

By LAWRENCE A. LONG
Editor of Croplife

DES MOINES—Three-day sessions of reports on control of herbaceous weeds, woody plants, weeds in field and horticultural crops, and brush on rangeland and pastures featured the 14th annual North Central Weed Control Conference held here Dec. 10-12. Convention headquarters was the Savory Hotel, but business sessions and trade exhibits were featured at the Veterans Memorial Auditorium.

Research workers from many Midwest states and surrounding areas, including Canadian provinces, plus a generous registration of industry people, comprised the crowd of 600 which took over not only the Savory Hotel, but also a number of others in the neighborhood.

Opening formalities Dec. 10, were presided over by Lyle A. Derscheid, South Dakota State College, Brookings, North Central Weed Control Conference vice president. Welcome was extended by Clyde Spry, Iowa secretary of agriculture. F. W. Slife, University of Illinois, president of the conference, added his remarks before the convention divided into sections.

Included in these were sections on botany, physiology and ecology; weed control in industrial areas; regulatory and extension; control of annuals, biennials and perennials; weed control in turf and aquatic areas, in pasture and rangeland, field and horticultural crops, and weed control on the county level.

A talk on the witchweed problem in the southeastern portion of the U.S. attracted a sizable audience. Discussing the subject was W. G. Westmoreland, North Carolina State College, Raleigh, who showed a series of slides illustrating the depradations of this parasitic plant, particularly in corn fields.

On land which would ordinarily allow yields of corn up to 75 bu. an acre, Mr. Westmoreland said, an infestation of witchweed would either completely ruin the crop, or reduce the yield to only a few bushels. If the weed is not controlled when once found in a field, he said, its spread within a few years will completely take over the area so that no corn can be raised at all.

Waiting for the threat to disappear would be out of the question, Mr. Westmoreland said, since the witchweed seeds can lie dormant in the soil for as long as twenty years, ready to attack any host plant at any time. The speaker said the objectives of the state in dealing with the pest are to contain it in its present area

(Continued on page 21)

Chemical & Pigment Completes Plant

SAN FRANCISCO—Chemical & Pigment Co., Oakland, Cal., has announced the completion of a new plant in Oakland for the production of Meteor Brand 36% zinc sulphate for agricultural and industrial use. Chemical & Pigment Co. also produces Meteor 22.8% zinc sulphate and Meteor zinc oxide.

Wilson & Geo. Meyer & Co., Pacific Coast distributor of agricultural and industrial chemicals, will act as exclusive sales agent for the new Meteor 36% zinc sulphate, as it has for the other Meteor zinc products since the early 1930's.

O. E. Cooper, president of Chemical & Pigment Co., described the new production facility as another step in the company's long-range expansion program. More than $100,000 has been spent recently on the first stages of the program, he said. The firm is expanding its markets eastward and expects to produce other inorganic chemicals in the future, Mr. Cooper said.

Sprayer, Duster Shipments Rise in Third Quarter

WASHINGTON—Estimated value of shipments of sprayers and dusters in the third quarter of 1957 was $6,354,000, for a healthy gain over a value of $5,206,000 in the corresponding quarter in 1956, according to the Bureau of the Census. However, the cumulative value of shipments for the January-September, 1957 period is $27,794,000, a reduction from $28,886,000 in a similar period in 1956.

Sulfur Output

WASHINGTON—The domestic sulfur industry produced 444,779 long tons of native sulfur during September, compared with 524,370 long tons in September, 1956, according to reports of producers to the Bureau of Mines. Output of recovered sulfur (of a purity of 97% or greater) was 43,912 long tons last September, compared with 42,000 long tons in September a year earlier.

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GRADUAL CHANGE SUGGESTED

Florida Group Hears Pros and Cons of Oxide vs. Elemental

GAINESVILLE, FLA. — Changing the method of expressing the amount of plant food contained in fertilizers received considerable discussion pro and con during the 17th annual meeting of the Soil and Crop Science Society of Florida at the University of Florida in Gainesville Dec. 4-6. Advantages and disadvantages of listing amounts of the elements P-K, rather than the oxides P_2O_5 and K_2O, were enumerated.

"This simplified method of using the elemental form would make for standardization in expressing plant composition, soil composition and fertilizer composition," declared W. F. Price, general manager of Swift and Co.'s plant food division, Chicago. "This would be a great advantage to the research man, control officials and other specialists. However, the most important man—the farmer—couldn't care less whether or not the change is made."

Mr. Price felt that the change would result in confusion and would help him—as a plant food manufacturer—in no way. He saw little advantage to manufacturers in the proposed change, but said a change could possibly be made gradually—perhaps listing contents of the bag by both methods for a few years.

Declaring that changes are constantly occurring in the use of fertilizers in the U.S., Dr. L. B. Nelson of the Agricultural Research Service, U.S. Department of Agriculture, summarized some major trends. He said tonnage of all fertilizers containing one or more of the primary plant food nutrients reached a peak of 23,412,000 tons in 1953 and has since declined to about 22,000,000 tons. During 1955-56 the combined tonnage of the primary plant nutrients decreased for the first time in 17 years.

Dr. Nelson pointed out that the ratio of mixed goods to total consumption—about two thirds of the total—has not changed in recent years. However, there has been a consistent upward trend in the nutrient content of mixed goods. Primary nutrient content averaged 17.9% in 1930, 19.9% in 1940, 23.6% in 1950 and 28.3% in 1956.

Both Dr. Nelson and J. R. Henderson, agronomist with the University of Florida agricultural extension service, touched on the extremely large number of different formulations and analyses offered for sale in Florida. Dr. Nelson said that currently there are about 1,500 grades of mixed fertilizers, with about 850 being sold in Florida. Mr. Henderson outlined a plan for reducing this number to a very small proportion.

Dr. George Stanford, Tennessee Valley Authority agronomist, said recent technological developments in TVA include (a) production of superphosphoric acid for use in preparation of liquid and solid mixed fertilizers and in acidulation of rock phosphate; (b) various improvements in processes for producing conventional materials, such as superphosphate, nitric phosphates and high analysis mixed grades; (c) pilot plant production of potassium metaphosphate and potassium-calcium pyrophosphate possessing varying degrees of water solubility; (d) hydrolysis and ammoniation of calcium metaphosphate; and (e) pilot plant production of ammonium metaphosphate, 17-73-0.

Dr. G. M. Volk, soils chemist with the Florida Agricultural Experiment Station, declared that "a review of recent literature on soils fertility and fertilization with respect to nitrogen shows considerable change in trend of interest. Much work has been done in an attempt to account for the total nitrogen applied to the soil in various forms. There is considerable evidence to show that inorganic nitrogen, especially the ammonia form, is rapidly immobilized when crop residues are present, but the return to a form available for plant utilization also is very rapid unless initial carbon-nitrogen ratios are high."

Dr. Volk said that volatile losses of ammonia from surface application of low pressure solutions or of incorporated anhydrous ammonia are significant in percentage by direct measurement, but comparative crop yields do not indicate material differences between these and incorporated solid nitrogen.

Dr. Nathan Gammon, Jr., Florida Experiment Station soils chemist, said that "annual applications of potash fertilizers are necessary to maintain production of practically all crops grown in Florida."

In discussing the effect of liming, he said the first effect is to reduce the exchangeable potassium. "This is primarily a mass effect where the vastly larger number of calcium ions simply displace the potassium ions on the exchange complex," he said. "Part of the exchangeable potassium was simply displaced from the exchange complex and moved down the soil profile in the drainage water. Although the first effect of lime is to reduce the exchangeable potassium, the second effect is to increase the percentage retention of applied fertilizer potassium. Potassium can replace calcium from the exchange complex much more readily than it can hydrogen."

Dr. J. G. A. Fiskel and Dr. G. M. Volk, both of the Florida Agricultural Experiment Station soils staff, told of their recent studies which have resulted in improved methods of sampling mixed fertilizers. Their studies were made at the request of the inspection division of the State Department of Agriculture and of the industry.

In addition to the symposium on fertilizers, sessions were devoted to soil reaction, lime and to radiation genetics, in addition to a number of invitational papers. Dr. Firman E. Bear, former head of the department of soils at Rutgers University, in the banquet address, reviewed world knowledge about soils, fertilizers and crops and touched on their influence on humans. He and Dr. H. Harold Hume, dean emeritus of the University of Florida College of Agriculture, were given honorary life memberships in the society.

Dr. George D. Thornton, assistant dean of the College of Agriculture, was elected president of the Soil and Crop Science Society of Florida, which has over 1,000 members in this country and many foreign countries. Dr. P. H. Senn, head of the agronomy department in the College of Agriculture, was chosen vice president, and Dr. R. V. Allison, who founded the society, was renamed secretary-treasurer. Dr. Allison is fiber technologist at the Everglades Experiment Station, Belle Glade.

Jefferson D. Stewart, Jr. Named President of Federal Chemical Co.

LOUISVILLE—Jefferson D. Stewart, Jr., executive vice president of the Federal Chemical Co. here since 1951, has been advanced to the presidency by the company's board of directors.

He succeeds John V. Collis, president since 1947, who becomes chairman of the board.

Mr. Stewart joined Federal Chemical in 1936, shortly after his graduation from Williams College. The appointments were effective Dec. 1.

T. G. Lewton, Jr., in New Chemagro Post

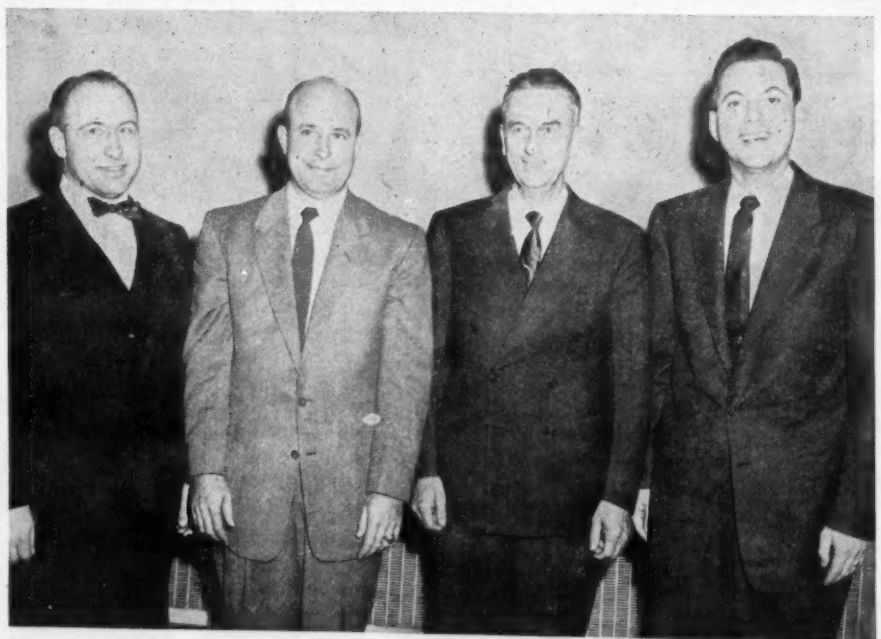
NEW YORK — Chemagro Corp., New York, has appointed T. G. Lewton, Jr. to head up its newly-created market development section.

Mr. Lewton previously served in a sales and marketing capacity in Chemagro's western sales region, with headquarters at San Mateo, Cal. In his new position, he will be located at Kansas City, Mo., where Chemagro Corp. is constructing new research laboratories and a new manufacturing plant. Mr. Lewton is a graduate of the University of California.

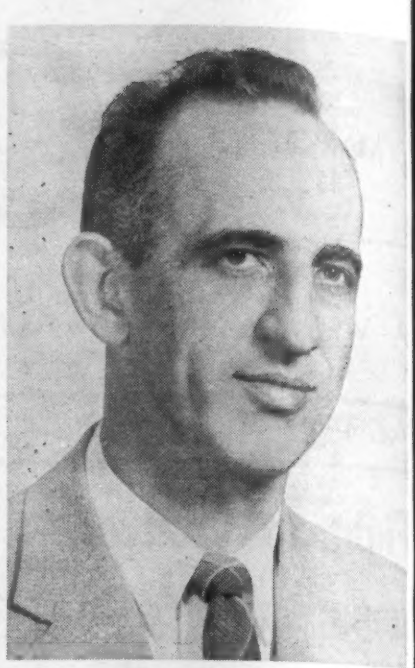
DuPont Reduces Price of Uramite

WILMINGTON, DEL. — The Du Pont Co. recently announced an approximate 10% reduction in the delivered prices of "Uramite" fertilizer compound to distributors.

This price reduction is made possible by the expanding market for "Uramite" on golf greens, fairways, parks, industrial grounds, athletic fields, as well as in nurseries and greenhouses, according to F. M. Jornlin, sales manager.



WEED SOCIETY OFFICERS—Gathered in planning session for the second meeting of the Weed Society of America scheduled to be held at Memphis, Tenn., Jan. 13-15, are officers of the society. Left to right are W. C. Jacob, University of Illinois, treasurer-business manager; W. B. Ennis, Jr., crops research division, Agricultural Research Service, USDA, Beltsville, Md., president; A. S. Crafts, University of California, Davis, vice president; and W. C. Shaw, crops research division, Agricultural Research Service, USDA, Beltsville, Md., secretary.



Frank B. Stewart

Frank B. Stewart in New Miller Products Post

PORTLAND, ORE. — Frank B. Stewart was named general manager and executive vice president of the Miller Products Co., Portland, Ore., at the recent annual meeting of the board of directors. He assumes the post of general manager, vacated by Roy E. Miller. Mr. Miller remains as president and chairman of the board of directors.

The Miller Products Co. is an agricultural chemical manufacturer, celebrating its 35th anniversary this year.

At the time of his appointment, Mr. Stewart had been acting as assistant general manager and vice president. He has been with the company for 11 years. He is a graduate of the University of Utah and spent five years with the army.

Swift & Co. Forms New Ag. Chemical Division

CHICAGO—In order to define more accurately its mission within its parent company, the plant food division of Swift & Co. has been designated the "Agricultural Chemical Division," according to W. F. Price, general manager. At the same time, its Chicago organization has been realigned along product and functional lines, he reports.

T. L. Adcock, formerly northern marketing manager, becomes marketing chief for all products. W. J. Chapin, formerly southern marketing manager, is in charge of agricultural plant food marketing; while E. E. Randolph becomes head of garden products marketing and G. E. Bruington retains responsibility for pesticides marketing.

In other changes, M. D. Sanders, formerly director of research, becomes director of research and development; and A. H. Bowers, formerly agronomist, assumes responsibility of merchandising and technical service for all products of the division. The manufacturing department, under U. C. Ellis, general superintendent, becomes the production department, and B. W. Guess remains in charge of purchasing as head of the procurement department, formerly the raw materials department.

Phillips Incorporates Mexican Subsidiary

BARTLESVILLE, OKLA.—Phillips Chemical Co. of Bartlesville, has announced the incorporation in Mexico, D.F., of its subsidiary, Phillips Quimica, S.A. de C.V., to supply Phillips 66 chemical fertilizers to Mexican agriculture. Administrator of Phillips Quimica operations is H. C. Jordan, now living in Mexico, D.F.

Plans call for the use of numerous regional warehouses, strategically located, from which the various fertilizers will be distributed to customers throughout Mexico, Phillips says.

Donald G. Brower Named Vice President Of Victor Chemical

CHICAGO—At a meeting of the board of directors of Victor Chemical Works, Donald G. Brower, who has been manager of research, was elected vice president in charge of research, Rothe Weigel, president, has announced. Victor, a producer of phosphorus, phosphates and other industrial chemicals, currently has its central research laboratories in Chicago Heights, Ill.

Mr. Brower joined Victor in 1932 and for many years has been active in various capacities in the evaluation and application of new products developed by the laboratories. In 1950, he became director of Victor's special products division, and in 1957, appointed chairman of the research planning committee. He graduated in chemistry from the University of Chicago.

Industry-College Program Scheduled for Wisconsin

MADISON, WIS.—Program for the 12th annual insect control conference with industry has been announced by the University of Wisconsin. The conference, scheduled to cover both urban and agricultural insect problems, will be held at the Loraine Hotel, Madison, on January 8-9, according to Dr. Ellsworth Fisher, University of Wisconsin extension entomologist, chairman of the program.

Wednesday, Jan. 8, will feature a panel on urban mosquito control and a further discussion on "The Lake Fly Problem for Industry and City." Chairman of the morning program will be R. J. Dicke of the University, who will also act as moderator on the panel which includes W. F. Kruger and T. W. Burnham.

In the afternoon, a panel discussion on urban termite control will be held, with Dr. Ralph Heal, executive secretary of the National Pest Control Assn., New York, as moderator. Participating on the panel will be John Bolgert, N. F. Heffernan, and R. E. Fleischer, city officials.

Another panel on Dutch elm disease will complete the program for the afternoon of Jan. 8. D. M. Benjamin will be moderator. Scheduled to appear on the program, and their subjects, are: J. E. Casida, "Recent Advances in Chemical Control of Insect Vectors;" E. B. Smalley, "Recent Advances in Host Resistance Studies;" E. B. Stiefvater, "An Area Control Program;" and George Hafstad, "Past Experience, and Control for 1958."

The second day's program will include two panel discussions, one on "Major Disease and Insect Problems of Apples and Cherries," by E. R. Oatman and J. D. Moore; and "Herbicides for Fruit, Vegetable, and Field Crops," by L. G. Holm and K. P. Buchholtz.

Dr. E. H. Fisher will be chairman of the final program of Jan. 9, when a summary of forest, field crop, vegetable, and livestock insect control recommendations for 1958 will be presented. Taking part in this portion of the program will be a number of University staff members: D. M. Benjamin, M. Stelzer, J. W. Apple, J. T. Medler, R. K. Chapman, and R. J. Dicke.

Kentucky Sales

LEXINGTON, KY.—October fertilizer sales in Kentucky totaled 30,666 tons, compared with 36,595 tons in October, 1956, according to the Kentucky Department of Feed & Fertilizer. Included in the October, 1957 total were 24,211 tons of mixed goods and 6,455 tons of materials. Sales for the first four months (July-October) of this fiscal year amounted to 69,638 tons, a reduction from 74,866 tons in a comparable period in 1956.

Keith O. Carter

New Sales Representative Named by Spencer

KANSAS CITY, MO.—Keith O. Carter has been named Nebraska and Colorado sales representative for Spencer Chemical Co.'s agricultural chemicals division, the company has announced. Mr. Carter is a graduate of Oklahoma State University with a degree in agronomy, and was employed by the Colorado soil conservation service as a soil scientist. Following this he entered the field of agricultural chemical sales. Before joining Spencer, he was district sales representative of the Agricultural Chemical Division of Colorado Fuel & Iron Corp. for three years. Before joining Colorado Fuel & Iron he was a sales representative for Armour Fertilizer Co. in Dallas. Mr. Carter now makes his home in York, Neb. In his new position he succeeds Joe Tuning who has been transferred to Amarillo, Texas, where he is senior salesman responsible for sales of anhydrous ammonia and solutions for direct application.

AACCO Announces Personnel Changes

NEW YORK—The American Agricultural Chemical Co. has announced three personnel changes in its fertilizer sales and production departments.

R. T. Gravitte, formerly with the Alexandria, Va. sales office, has become responsible as assistant manager of sales at the Cincinnati fertilizer plant.

R. T. McFerson has become responsible as assistant manager of sales at the Fulton, Ill. fertilizer plant.

W. A. Glover, formerly assistant superintendent of production at the Pensacola, Fla. plant, has become responsible as production superintendent at the Columbia, S.C. fertilizer plant.

Inorganic Chemical Production Shows Gain

WASHINGTON — September production of most inorganic chemicals of interest to the farm chemical industry showed increases over the September, 1956 output, according to the Bureau of the Census. Following are the September, 1957 production figures, with those for September, 1956, in parentheses:

Synthetic anhydrous ammonia 290,624 short tons (257,014); fertilizer grade ammonium nitrate, original solution 186,244 short tons (138,086); synthetic (technical) ammonium sulfate 83,541 short tons (93,462); ammonium sulfate byproduct 74,497 short tons (75,621); phosphoric acid from phosphate rock 211,112 short tons (166,645); sulfuric acid 1,347,705 short tons (1,322,684).

Importance of Soil Testing Stressed at Alabama Meeting

MONTGOMERY, ALA.—It is the responsibility of the fertilizer industry to make available to farmers the grades of fertilizers which have been shown by research to be needed on their individual fields, Dr. Howard T. Rogers, head of the department of agronomy and soils of the Alabama Polytechnic Institute told members of the Alabama Soil Fertility Society at their third annual convention.

Dr. Rogers praised the work of J. F. Dugger, M. J. Funchess and J. T. Williamson of the Alabama station for their fertilizer investigations which were begun nearly 60 years ago, and said their research was "extensive, basically sound and imaginative."

However, it was pointed out that the general fertilizer recommendations resulting from their efforts had serious limitations because they did not take into consideration the differences in fertility levels which are often found within soil regions. Only through the soil test can a farmer know the most profitable kind and amount of fertilizer to use on each of his fields, and thus utilize all of the research that is available to him, Dr. Rogers said.

Fertilizer recommendations given farmers from soil tests are based upon response obtained from both long-time and short-time field experiments correlated with the availability of the essential plant food elements in the soil as measured by chemical means, Dr. R. D. Rouse, head of the state soil testing laboratory at Auburn explained.

Data from more than 50,000 samples of soil tested in Alabama show a need for an even P-K fertilizer in 74% of the cases, Dr. Rouse stated. A low P-high K fertilizer is needed in 19%, and in only 7% is a high P-low K mixture desirable.

"The fertilizer industry is certain to profit from the soil testing program and it should do everything in its power to encourage farmers to use it as a basis for applying lime and fertilizer," Dr. Rouse said. "Efficient farming cannot be based on general recommendations."

A minor element inventory of Alabama soils was given by Dr. John I. Wear, soil chemist of the Alabama station, and the 1958 farm outlook was discussed by Foy Helms, economist of the state extension service.

M. H. Lane of the Alabama ASC told of the 1958 soil bank plans, and progress in the agronomy extension educational program in several southern states was discussed by W. A. Sutton, director of extension in Georgia.

Frank Boyd, Virginia-Carolina Chemical Corp., and Charles W. Summerour, American Potash Institute, both of Montgomery, were reelected president and secretary-treasurer respectively of the society for 1958. Ernest B. Johnston, Centrala Farmers Cooperative, Selma, and A. A. Morris, Sr., Dothan Guano Co., Dothan, were elected vice presidents.

New directors elected were John A. Dorland, McMillan & Harrison Fertilizer Co., Mobile; J. C. Gentle, Alabama Aggregate Co., Birmingham; James Morgan, F. S. Royster Guano Co., Albertville, and Roy Pratt, Jr., Republic Steel Co., Birmingham.

Fire Ant Spreading In Louisiana, Texas

AUSTIN, TEXAS — The South American fire ant is making serious inroads into Louisiana and Texas, according to John C. White, Texas agriculture commissioner. He says they are known to be spreading in extreme Southeast Texas in a line between Houston and New Orleans.

In order to avoid quarantine, he advises all nursery owners to make a close inspection of the premises, and if the ants are found, proper eradication methods should be used. Certain chemicals are effective if used properly and in sufficient quantities.

Mr. White says the fire ants pose a serious threat to agriculture. In heavily infested cotton fields laborers have found it difficult to work. Also they interfere with cultivation by building large earth mounds throughout the fields.

Abbott to Expand Research Program

CHICAGO—Ground was broken Dec. 3 for a group of five new buildings to be used in Abbott Laboratories' expanded agricultural research program. The buildings will be located on the company's 220-acre research farm near Mundelein, Ill. Completion is expected by early spring.

Crop growth studies at the farm will include experiments with gibberellic acids and other plant growth materials. The major portion of the new facilities, however, will be devoted to animal nutrition, animal health, and research on poultry diseases.

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AT SOUTH DAKOTA MEETING—Checking fertilizer research results of the Agricultural Experiment Station in South Dakota are, left to right, Carl Reed, Vermillion, S.D., representing Bartlett and Co.; Dr. W. W. Worzella, head of the agronomy department at South Dakota State College, and Dr. George D. Scarseth, Lafayette, Ind., research director of the American Farm Research Assn. The three were among 125 taking part in the eighth annual South Dakota dealers Fertilizer Short Course.

Farm Research Has Prevented Hunger, South Dakota Group Told

BROOKINGS, S.D.—The United States would be living in hunger today if agricultural research had not overcome plant and animal pests and diseases and found ways to make poor and worn down soils productive with chemical fertilizers.

That is what Dr. George D. Scarseth of Lafayette, Ind., director of research for the American Farm Research Assn., told some 125 persons attending the eighth annual dealers Fertilizer Short Course here Dec. 6.

Dr. Scarseth discussed implications of research on farms in South Dakota and the Northern Great Plains. His topic was "The Gold I See In Your Plains."

A banker, a government agency official and four soil scientists also appeared on the program, designed to keep fertilizer dealers and other agricultural people up-to-date on the subject of fertilizer. The program was sponsored by the agronomy department at South Dakota State College under the direction of W. W. Worzella.

Dr. Scarseth said: "What was common sense in Grandpa's day may be nonsense and useless in this new age of tremendous but still limited knowledge. More research, more knowledge and more understanding are on the way."

The speaker said the average consumer of farm products has benefited more from agricultural research than has the farmer because of an abundance of these products. Turning to how research could benefit South Dakota farmers, Dr. Scarseth said that the 60 million more people expected in this country by 1975 will need more food, water and space to live and travel.

"South Dakota lies in a most favorable area for such growth," he said.

He said the long hours of sunshine in the spring before the soil warms are "valuable capital in this new age" because farmers can add plant food early without waiting for slower decomposition to take place. Nitrogen and phosphates supplied early to crops can get them off to an early start.

The speaker hinted that new research may be needed to learn how to treat the soil with a cover of residue to keep the soil cool and moist in low rainfall areas of warm climates.

Dr. Scarseth predicted that future crops will be produced where climates and soils are most favorable to the crop. "This will keep areas less favored in these aspects out of competition," he said. Northern Great Plains farmers have some advantages in small grains, forage crops and root crops.

South Dakota farmers will find it necessary to specialize for efficiency to meet competition, Dr. Scarseth said. This will mean more intensive farms with a race towards lower costs per unit.

"This will be a hard shift for the plains farmer," he added, "because he has been on an extensive basis and will need to become more intensive."

Giving research a pat on the back, Dr. Scarseth said these studies bring new opportunities which mean discarding old ideas. Research means change and change means progress.

"South Dakota has a new future on a new frontier where both food and space will have a new value," the researcher said.

Vincent Dunn, official of the State Agricultural Stabilization and Conservation Committee at Huron, spoke on the ASC fertilizer program. Because fertilizer use in the state is still in its infancy, Mr. Dunn said, the ASC feels responsible to help farmers know why fertilizer is necessary and what types are best for the land.

Mr. Dunn said South Dakota farmers were paid $228,407 in 1956—the last full year of available figures—for fertilizer payments under the A-3 rotation seeding practice. A total of 644,541 acres of grasses and legumes were established under the practice, he said.

The use of fertilizer by a credit-seeking farmer is one "indicator" of sound farm management practices, according to Dave Patterson, representative of the Farmers and Merchants Bank of Watertown, S.D. Mr. Patterson said sound management, in turn, is the key factor in handling farm credit loans.

Other speakers on the day's program were L. F. Puhr who spoke on soil factors influencing the efficiency and use of nitrogen and phosphorus; L. O. Fine whose topic was chemical and physical aspects of fertilizer use; Burton L. Brage who discussed fertilizer results on small grain and forage; and F. E. Shubeck who described fertilizer results in corn. All are agronomists with the Agricultural Experiment Station in South Dakota.

Max Myers, director of the experiment station, welcomed the group.

Two Fertilizer Producers to Install Dorrco Systems

STAMFORD, CONN.—Dorr-Oliver, Inc, here has announced that two western fertilizer producers will install Dorrco FluoSolids systems to calcine phosphate rock at new plants in Idaho and Wyoming.

Presently under construction and schedu'ed to go into operation in 1958 the Georgetown, Idaho, plant of Central Farmers Fertilizer Co. will employ a fluidized system to handle 25 tons phosphate rock an hour. Organic materials which interfere with processing steps later in the flowsheet will be burned off in this operation.

San Francisco Chemical Co. has purchased a two-Reactor FluoSolids system to calcine 1,000 tons per day of phosphate rock at its Leefe, Wyo., plant. Operating in parallel at 6,300 ft. elevation, each Reactor will be capable of roasting a maximum of 25 tons per hour of very abrasive and sticky feed material, Dorr-Oliver said.

The FluoSolids reactors at both locations will be divided vertically into three compartments by refractory arches. Feed material is first admitted to the top, or preheating chamber, where it is heated by hot gasses rising from the calcining chamber beneath. Preheated rock overflows into the 14 ft. diameter calcining chamber below and is calcined at about 1450° F. Fully calcined particles overflow into the lower or cooling chamber where they are cooled by the incoming air. Cooled product is taken off for further processing while the hot gasses, after rising countercurrently through the upper compartments, are passed through cyclones to remove fine entrained dust.

The Dorrco FluoSolids system, employing the fluidized bed principle, was originally applied to the roasting of arseno-pyrites in the recovery of gold and to the calcination of limestone. In the past several years, however, this system has been used for roasting of various sulfide minerals such as pyrite and zinc and copper concentrates and for drying of various non-metallics and fine coal.

Demonstrations Give Valuable Information

LEVELLAND, TEXAS—The 100 or more crop demonstrations in Hockley County this year supervised by the extension service has returned some valuable information, according to Bill Taylor, county agricultural agent.

The demonstration plots cultivated by farmers but supervised by Mr. Taylor ranged from veriety tests and seeding rates to the usage of fertilizer and methods of application.

"We learned enough to know that fertilizer on cotton gave from $25 to $30 more profit per acre than cotton which was not fertilized," said Mr. Taylor.

Fertilizer was applied at varying rates, but a cost-and-return analysis of the various kinds has not yet been made, Mr. Taylor said.

The entire cost of the projects to the taxpayers is not more than $5,000 annually, but may result in an increased income of hundreds of thousands of dollars, if the farmers will use the information.

Taylor estimated that 50,000 acres in the county was fertilized this year. Prior to 1952, no fertilizer had ever been used except on garden-sized plots.

SCHOLARSHIP WINNERS

CHICAGO—Billy O'Brien, 20, Afton, Tenn., and Roger Kleese, 20, Washington, Iowa, have been named winners of $800 college scholarships in the 4-H Agronomy Scholarship Program. The awards are provided by California Spray-Chemical Corp.

Leo Miles

JOINS GEIGY—Geigy Agricultural Chemicals, division of Geigy Chemical Corp., has announced the appointment of Leo Miles as Simazin industrial sales specialist. Mr. Miles will devote his efforts to sales development and technical services for Geigy's new pre-emergence, long residual herbicide, Simazin 50W. Mr. Miles is a native of Cleveland and a graduate of Ohio State University, where he received both his B.S. and M.S. degrees. Prior to joining Geigy, he worked for the U.S. Borax and Chemical Corp. as a field representative in the New York-New England area. Mr. Miles will make his headquarters at the Geigy main office in Ardsley, N.Y.

Harold W. Lloyd, A. T. Montgomery Named to CSC Sales

NEW YORK—Harold W. Lloyd and A. T. Montgomery have joined the agricultural chemicals department of Commercial Solvents Corp. as sales representatives, it has been announced by Clyde T. Marshall, department manager. Both will make their headquarters at CSC's district office, 344 Williams St., Atlanta, Ga.

Mr. Lloyd will concentrate on sales of CSC Hi-D solid ammonium nitrate, Dixsol nitrogen solutions, and other products in the company's nitrogen fertilizer line to fertilizer manufacturers in North Carolina. Mr. Montgomery has been assigned similar responsibilities for Alabama.

Mr. Lloyd, who is a native of Richlands, N.C., graduated from North Carolina State College, where he received a bachelor of science degree in agronomy. During World War II he served with the U.S. Navy. Prior to joining CSC he represented Baugh & Sons Co., fertilizer manufacturers in New Bern, N.C.

Mr. Montgomery has spent the past six years in fertilizer sales with the Virginia-Carolina Chemical Corp. Originally from Moulton, Ala., his business career has been in the South. During World War II he served with the U.S. Navy.

Speaker Named

HARLINGEN, TEXAS—Miss Fran E. Fisher of the Citrus Experiment Station at Lake Alfred, Fla., has accepted an invitation to speak before the Valley Horticultural Institute at Weslaco Jan. 21, according to Harry Foehner, president of the Valley Horticultural Society. Miss Fisher will describe the work that has been done with zineb to control russeting of citrus fruits. A number of growers in the Tip o' Texas have already used zineb for this purpose on an exploratory basis. She is the first speaker to confirm a place on the program sponsored annually by the society. Other confirmations are expected to be announced shortly by other speakers.

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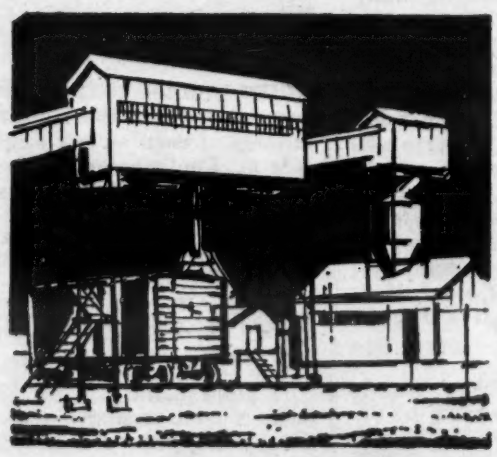

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USDA REPORT . . .

Studies Reveal How Plants' Growth and Development Are Affected by Gibberellic Acid

By Paul C. Marth and Bernard C. Smale
Crops Research Division
Agricultural Research Service
U.S. Department of Agriculture
Beltsville, Md.

The combined efforts of chemists in the isolation and purification of gibberellic acid (1-7) and of plant scientists in investigation of ways that plants respond to it have opened new and important possibilities for chemical control of plant growth. Application of gibberellic acid to more than 60 genera or species, and varieties of plants resulted in a variety of growth responses (8, 9).

Some of these advance our basic understanding of plant physiology. Others appear to be directly applicable to the production of better crop plants. The great increase in papers on the subject in this country (10, 11) shows clearly that language and political barriers which delayed our own research on gibberellic acid have been largely surmounted.

The gibberellins are natural plant growth regulators produced by the fungus Gibberella fujikuroi, the perfect stage of Fusarium moniliforme. There are apparently 3 known gibberellins designated as A, B, and C by the Japanese. Gibberellin B appears to be chemically and biologically the same as gibberellin X isolated by Stodola (5) and the gibberellic acid isolated by the British (2). In Japan and certain other countries, Gibberella is a serious pathogen of rice, causing the seedlings to grow long and spindly and drastically reducing the yield of grain. On rice, this dread disease is called "Banaknae" or "foolish seedling" disease.

Some species of other Fusarium are serious pathogens of a wide variety of crop plants, but they do not cause stem elongation of host plants. In 1926, a Japanese scientist, Kurosawa (12), reported that the excessive elongation of infected rice seedlings was due to a metabolite produced by Gibberella fujikuroi. Later, Sumiki (1) and Japanese workers isolated white crystals from the liquid medium on which Gibberella had grown. This compound, which later proved to be a mixture of gibberellin A, B and C, not only induced rice stems to elongate, but it caused elongation of the stems of several kinds of dicotyledonous plants.

At the University of Tokyo, Sumiki (1) and his students observed, by degradation studies, that their gibberellin A contained a basic ring system composed of a fluorene nucleus. Recently, Cross (13) and his colleagues of Imperial Chemicals Industries Limited reported a tentative structure for gibberellic acid (1, 5). It also contains a fluorene nucleus, but they are in doubt as to the points of attachment of the lactone group.

Upon learning that a basic fluorene nucleus may be a clue to the structure of gibberellic acid, Mitchell and co-workers at the plant regulator laboratory in Beltsville, Maryland, reevaluated compounds of this type (structure and synthesis known) that had been tested earlier for plant regulator activity. Of some 40 compounds with widely different substituents on the fluorene nucleus, 7 had been classified as plant regulators.

These 7 substituted fluorene compounds caused mild to severe growth-regulating effects on test plants. One of these 7 also caused the plants to develop rugose, savoy-type leaves. None of them, however, induced effects similar to those induced by gibberellic acid.

Several years ago, it was reported that an ether extract of the endosperm of young bean seeds induced stem elongation of bean plants several hundred percent over that of untreated plants (14). Comparison of the responses of bean plants treated with either gibberellic acid and the bean-seed extract were similar in some respects, but differences were also noted. Other scientists more recently detected (15, 16, 17) substances in extracts from a wide variety of plants and these induced responses similar to those induced by gibberellic acid.

Gibberellic acid at present is produced by mass culture of selected strains of Gibberella. The production of most chemicals by such culture of microorganisms generally results in a relatively expensive product because equipment and procedures involved are complexed. An inexpensive chemical method of synthesizing gibberellic acid would, of course, result in a less costly product but at this time such a method has not been published.

For the present, at least, experimentation with gibberellins must be limited to those produced by biological methods. Many companies in this field in the U.S. are, of course, familiar with similar methods used in production of antibiotics and apparently feel that it is economically feasible to produce gibberellic acid by biological methods.

In comparing the biological activity of gibberellic acid and gibberellin mixtures from the several different sources, we have used as one test the growth rate of young intact Pinto bean plants. The chemicals obtained from each of the various sources were highly effective and required similar amounts to bring about typical responses. Another method of comparing the gibberellins from different sources is being developed. It consists essentially of a combination of standard chromatographic methods as a means of separating constituents of the mixtures and the use of bean plants as a means of bioassay. By use of this method it has been possible to detect as little as 0.2 microgram of pure gibberellic acid within 24 to 48 hours.

A number of methods of preparation and application of gibberellic acid has been used. These include the method of using lanolin paste mixtures and aqueous solutions. Of the former mixture, approximately 20 mg. of the paste was applied to test plants as a band 3 to 4 mm. wide. In the case of aqueous solutions, application was by spraying, soaking or dipping the test plants.

Early experimental work with gibberellic acid (8) was aimed primarily at determining whether plants in general would respond to this compound. Over 60 genera, species, and varieties of agronomic, forest, or horticultural plants grown in soil in the greenhouse were included in this study. Most of them responded in some way to the acid. Variations in the responsiveness of different varieties of a given crop plant were also noted. The overall result of this study showed that gibberellic acid will probably affect the growth and development of most of our economic plants.

The British reported an increase in dry weight of wheat and other plants grown in nutrient solutions to which gibberellic acid was added (6). In experiments at Beltsville, a study of both plant size and dry weight was made. In 3 experiments with soybeans and with Pinto beans under greenhouse conditions, the treated plants were 21 to 32% heavier than untreated ones during the early stages of growth. As the plants progressively became more pot bound, however, the differences in dry weight decreased, and after 2 to 3 weeks there were no detectable differences.

On most plants the first detectable effect of the chemical is rapid elongation of the stems. The magnitude of this response varies with the kind of plant and the dosage applied. Other workers also reported increased elongation of stems of a wide variety of plants (7, 9, 16).

Young Pinto bean plants and other young succulent plants, when grown under greenhouse conditions, showed a measurable response within 24 hours after they had been sprayed with 0.01 p.p.m. of the acid. For many kinds of the woody plants such as roses, azaleas, loblolly pine seedlings, however, a concentration of 100 p.p.m. or greater was required. At first the elongated stems of treated plants were often thinner than those of untreated ones, but later some species of treated plants developed stems thicker and sturdier than those of the untreated ones. Heights of willow oak, black walnut and loblolly pine were increased 40% and stem diameters were increased 200% over those of untreated plants 6 to 8 months after treatment.

On the basis of the information we have at hand, it appears that stem growth of relatively young plants with well-developed root systems and with adequate food reserves in their leaves and stems may be expected to respond more readily to gibberellic acid than plants with undeveloped root systems and limited food reserves. In addition, maximum response may depend upon an adequate supply of nutrients and water in the soil along with optimum light.

Treatment of young rapidly growing plants may result in mild to severe chlorosis. Apparently, chlorophyll production does not keep pace with the stepped-up rate of cell elongation and other growth. On the basis of visual estimations, the intensity of green color in several kinds of plants treated with gibberellic acid appeared noticeably reduced compared with that of comparable untreated plants. Application of mineral nutrients to the soil largely corrected the chlorotic effects induced by gibberellic acid.

In preliminary experiments with Pinto bean plants, the addition of

CORN UNLIMITED—A combination of heavy fertilization and wise cultural care enabled Lindon Ratliff, 14 year old Mississippi farm lad to grow 250.85 bushels of corn on his single acre plot during the 1957 season. Impressive as this is, Lindon's record is short of the 304 bushel record achieved by his brother, Lamar on the same plot two years ago.

Another Ratliff Emerges as Corn Champ; Gets 250.85 Bushels From Single Acre

BALDWIN, MISS.—The highest corn yield in the U.S. for 1957, 250.85 bushels from a single acre, has been set by 14 year old Lindon Ratliff, Prentiss County, Miss., brother of Lamar Ratliff who set an all-time record of 304 bushels of corn from this same acre two years ago.

The younger Ratliff, having seen his brother top the U.S. four times in five years, still believes he can beat that 304 bushel record eventually. At least, he is certainly trying.

The Ratliffs own less than 15 acres of crop land. They have concentrated on this small piece of bottom land for almost ten years until it is one of the most fertile in the world. The neighbors who now call it "Gods Little Acre," recall when the field yielded less than one wagon load of corn. Lindon's 250 bushels filled almost five wagons this year.

Lindon used over a ton and one-half of commercial fertilizer to grow this year's crop, and applied 70 loads of manure. He plowed the ground nine times and used 30 inch spacings between the rows rather than the 40 inches common to the corn belt. A whole bushel of seed was planted to the acre, whereas a bushel plants six to seven acres on an average farm. Lindon thinned his plants with a hoe to get a perfect stand. The Ratliffs have used the same hybrid seed for all of their records.

Power was supplied by their 20-year-old white mule, Dolly. Besides providing the "horse power," Dolly has contributed the mule shoes which make up the Ratliff trophy case. When they made their first state yield back in 1950, the Ratliffs hung up one of Dolly's shoes. Since then they have added a shoe for each record, and it has become quite a string.

Harvesting the farm plot has become almost a national event. Every ear of corn on the acre is weighed to compute the yield. First, Taylor Smith, county agent and his assistant Jim Archer, measure off the acre and mark it; the ears are then husked and weighed. Moisture samples must be sent to Mississippi State College and shelling percentages taken before final calculations can be made.

varying amounts of urea to gibberellic acid spray mixtures did not counteract this chlorosis. Applications of urea to the soil in which the treated plants were growing, likewise, was not effective in reducing the chlorosis.

Small spatulate shaped leaves resulted from treatment of citrus and bean seedlings with excessive amounts of the acid. When relatively low concentrations of the acid (0.01 p.p.m. spray) were applied to bean plants, however, a 50% increase in leaf area was detectable 14 days after treatment.

Much interest has been expressed in the possibility that bud dormancy may be overcome by use of gibberellic acid. On some kinds of plants (citrus, willow oak and snapdragon) lateral bud dormancy caused by apical dominance was lessened and resulted in the production of more lateral branches in treated plants than in untreated ones. The main axis in the terminal buds of 2- to 3-year-old dogwood, red maple, horse chestnut and catalpa elongated rapidly when treated with a 1.0% lanolin paste mixture of the acid. These plants were grown continuously for a period of 18 months in the greenhouse at temperatures varying from about 60° to 100° F.

Comparable untreated plants remained quiescent, but alive, during this period. Ordinarily these plants develop new stem growth only after exposure to temperatures below 40° F. for extended periods to an effective light treatment or to other dormancy-breaking treatments. In current experiments with young vegetative sugar beets, hydrangea, cabbage, and celery plants not subjected to the usual cold treatment, gibberellic acid induced the main stems in the terminal buds to elongate.

In contrast, treatment of the dormant storage organs of potato and dahlia did not induce stem elongation of these dormant buds to the same marked degree as when comparable treatments were applied to young stems already elongating. Neither gladiolus corms nor young elongating stems of gladiolus responded to gibberellic acid.

In these experiments it was not possible to directly initiate flower bud development as a result of gibberellic acid treatment although flowers were produced on 1 sugar beet plant out of 10 in 1 experiment.

At the moment, it appears that gibberellic acid may be expected to influence dormancy caused by some, but not all, physiological processes. More information is needed, in this connection, with regard to dormancy of woody plant material such as fruit trees and forest trees. In limited experiments under greenhouse conditions with dormant willow oak trees that had been subjected to some cold out-of-doors prior to January, the gibberellic acid-treated plants developed new shoots about 2 weeks earlier than the untreated plants.

Often slow-growing shrubs, such as horticultural varieties of yew rhododendron, English boxwood and dwarf azalea hybrids remain dormant for prolonged periods after the cuttings have been rooted and the plants are well established in soil. One year after gibberellic acid was applied to small established plants of these species the new growth was more than twice that of untreated ones. To nurserymen, these results are of considerable interest since it generally requires 3 to 6 years to produce plants of saleable size. Gibberellic acid applications if used properly may shorten this period considerably.

Based on results obtained at Beltsville, gibberellic acid has an effect on flower production, but it may be an indirect one brought about by altering the overall growth habit of the various kinds of plants studied. Plants such as dahlia, shasta daisy and pepper grass, often remain in the rosette vegetative stage for several months. Application of the acid to these plants induced formation of flower stalks and production of flower stalks and production of flowers 1 to 4 months earlier than occurred in untreated ones.

When young sweet peppers were treated, however, they developed excessive vegetative growth as compared with untreated plants, and flowered 1 month later. Some other plants produced an abundance of flower buds, many of which failed to develop beyond the tiny, but visible, bud stage. A preliminary experiment, in cooperation with G. B. Brown of the Cheyenne, Wyoming Agriculture Experiment Station, involving application of the acid to young strawberry plants of the Araphoe variety resulted in marked responses.

This variety is difficult to propagate because it does not produce sufficient runners. Three weeks after spray application of the acid, treated plants were 9 to 14 inches tall and had set 9 to 12 fruits per plant while the controls were only 1 to 2 inches tall and did not flower or set fruit. This experiment is in progress and it is still too early to observe any effects on runner production.

One striking example of what appears to be a direct effect of gibberellic acid on flower formation is indicated in a current experiment with Pfitzer juniper, an evergreen shrub. Cuttings made from a large plant were rooted in January, 1956 and the plants allowed a period of 2 months to become established in soil prior to treatment with gibberellic acid. The acid was applied as a band of 0.5% lanolin-mixture around each terminal shoot. Three months later the entire lot of twelve treated plants had formed an abundance of male flowers while the untreated ones had not yet produced flowers. Both lots of plants meanwhile have made excellent vegetative growth.

Application of gibberellic acid to young developing fruits of bean, tomato or pepper resulting from pollination has not stimulated their rate of development. Similarly, treatments of hard, green banana fruits have not affected their rate of softening and loss of green color; effects easily obtained by treatment with 2,4-D.

Gibberellic acid suppressed root growth of several kinds of plants. Even though the dry weights of tops of Pinto bean and soybeans treated with the acid and grown under greenhouse conditions increased 5 to 35% over those of untreated ones, the dry weight of roots decreased 9 to 19%. A similar lack of root growth was noted in the case of treated citrus seedlings. Marked suppression of root induction and growth was noted in preliminary experiments with cuttings of geranium, rose, Pfitzer juniper, privet and firethorn, to which 10 and 100 p.p.m. of the acid was applied.

Further evidence that gibberellic acid inhibited root induction and root growth was obtained in an experiment with hydrangia cuttings. Separate lots of cuttings were treated with gibberellic acid, indolebutyric acid or with a combination of both of these acids. Not only did gibberellic acid suppress root initiation but it apparently resulted in a reduction of the ability of the cuttings to respond to the root inducing chemical, indolebutyric acid. This work was done in cooperation with N. Stuart at Beltsville.

Celery and English boxwood plants that were treated with gibberellic acid were much more susceptible to frost injury than untreated ones, when subjected out-of-doors to winter temperatures. Celery plants that were treated with acid in the field became taller and at the end of the summer contained 25 to 40% more moisture than the untreated plants.

By way of conclusion, we would like to again call attention to the excellent work done by the Japanese in first providing this new tool for physiological research which may also aid agriculture in general. There will no doubt be disappointments and failures in finding how best to use it. We are all prone sometimes to make broad generalizations that may not be well-founded.

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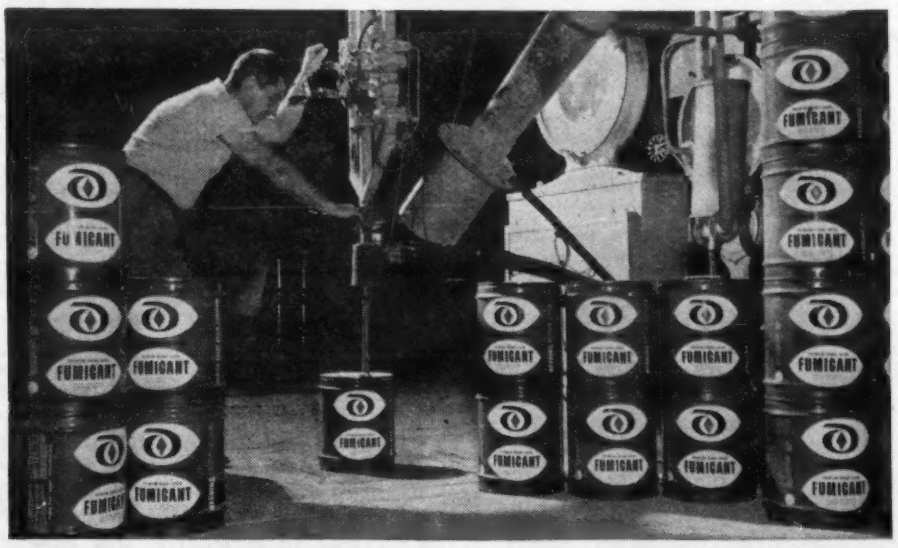


NEW DIAMOND PACKAGES—Diamond Alkali Co., Cleveland, has adopted newly designed packages for packing and shipping agricultural and industrial chemicals. The new design is seen in the above photo, which shows the filling of 5-gal. metal drums at the firm's Painesville, Ohio plant. The design features the firm's new insignia, "the Chemical Diamond," in a standard contrasting color combination of regal red and black. In addition to 5-gal. metal drums, other Diamond packages such as 55-gal. drums and multiwall Kraft paper bags also incorporate the same basic design elements and standard format.

Pacific Northwest Group Sets Meeting At Gearhart, Ore.

PORTLAND, ORE. — Directors of the Pacific Northwest Plant Food Assn., meeting at Pendleton, approved Gearhart, Ore., as the site for the next annual convention. Dates for the annual meeting were set for Oct. 22-24, 1958.

The board also approved appointment of three men to represent the association on the Union Pacific Railroad's annual agricultural jaunt on its lines in Oregon, Washington and Idaho. Those who will represent the association are Karl Baur, Pacific Cooperatives, Portland; Grant Braun, American Potash Institute, Portland, and Todt Tremblay, new Pacific Northwest representative of the National Plant Food Institute.

The board also elected Mr. Tremblay to the Soil Improvement Committee of the association. This is a permanent selection of the board.

The Soil Improvement Committee received approval of the board to change its soil testing program to the vocational agricultural program in Washington and spend the unexpended fund of $1,000 in this program. Details are being worked out with Washington State College.

The next meeting of the board will be held in Portland in March.

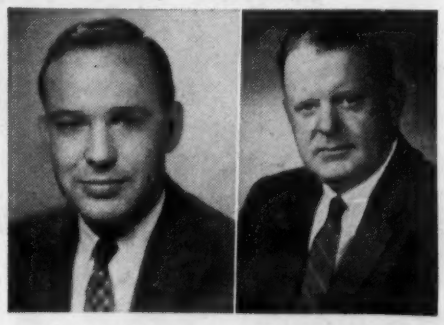
Oregon State Gets Grant for Study of Fertilizer Use Economics

WASHINGTON—A $2,100 research grant has been made available by the National Plant Food Institute to Oregon State College, Corvallis, for the purpose of conducting an economic study of fertilizer use, Dr. Russell Coleman, executive vice president of the institute, has announced.

The one-year grant will provide an assistantship, under the supervision of Dr. W. G. Brown, assistant professor in agricultural economics, and the study will be made in the college's agricultural economics department.

"The grant is one of several through which the institute is emphasizing the growing need for a stepped-up program in the field of economics, particularly the economic analysis of agronomic data," Dr. Coleman said.

Assisting Dr. Brown with the study will be J. W. Couston, research assistant in the agricultural economics department, Dr. T. A. Jackson, associate soil scientist, who will represent the soils department, and Dr. Wilson Foote, associate professor in farm crops, who will represent the farm crop department. Dr. Jackson, in providing the basic data for the grant, has conducted the experimental work, while Dr. Foote has assisted in the field trials.



Philip Williams T. W. Brown, Jr.

APPOINTMENTS MADE—Two top positions in the multiwall bag division of Owens-Illinois Glass Co. have been filled with the appointment of T. W. Brown, Jr., as general sales manager and Philip Williams as assistant sales manager. Mr. Brown was formerly sales manager of the southern district, multiwall bag division, at Mobile, Ala. Mr. Williams joined Owens-Illinois in 1956 and served in the Houston and Dallas, Texas, and St. Louis areas.

Ezra Taft Benson Asks for 60-90% Sliding Parity Scale

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON — Ezra Taft Benson, secretary of agriculture, last week told the American Farm Bureau Federation convention in Chicago that he planned to ask Congress for full discretionary authority to fix the price support levels for basic commodities between 60% and 90% of parity.

Mr. Benson said that if Congress is unwilling to grant such authority to the U.S. Department of Agriculture while he is secretary, he will suggest formation of a bipartisan commission to set the support levels.

If such authority were approved by Congress it would not affect current 75% of parity supports for the 1957 crops of rice and wheat nor for that matter the other basic commodities of corn, cotton, peanuts and tobacco. The secretary's request for this authority would only be effective for fiscal year 1959.

In regard to the other small grain crops and oilseeds it has been learned that there will be no decision on the support levels for those 1957-58 crops until February. However, it is believed that current leanings are to drop the level of those supports down below 70% of parity since the secretary has broad discretion now for the non-basic storable commodities and oilseeds.

The secretary told the Farm Bureau audience that he was against the direct payment program theory—the so-called Brannan Plan—since it would place farmers at the mercy of every Congress to appropriate funds to make the compensatory payments.

Also he again rejected the two price plans for major crops which would provide a federal guarantee of parity for wheat and rice specifically for that part of the crop consumed in domestic markets and allow the export or feed sales to be made at open market prices. It was not so stated by the secretary but it is well known that the two price system also would require acreage controls as would the direct payment plans previously espoused.

Mr. Benson hammered home his opposition to the present levels of price support for the farm commodities. He asserted that four-fifths of the cost of price support are for commodities raised on about one-fourth of the farms of the nation. He charged that to support this type of farm program was a deceit on the American farmer when it was claimed that it helped the small farmer.

Speaking to a predominantly Corn Belt farm group, Mr. Benson said that high price supports for corn have promoted the production of corn on wheat and cotton land.

The cotton farmer dilemma, according to the secretary, is that of increased foreign production. High price support umbrellas for the domestic cotton producer have priced our cotton out of world markets except where the government subsidizes its export.

Prior to his appearance at Chicago the secretary stated that the soil bank program would be under sharp revisions if Congress will accept USDA recommendations. After this year, he stated USDA intended to put into effect a program whereby farmers could come to USDA and offer it total land for the conservation reserve program of the soil bank on a bid basis by the government. This could involve either rental payments over a contract period or even sale of the land to the government.

This position indicates that after this year the acreage reserve program of USDA is dead. It will be effective through this coming calendar year and the conservation reserve program would be effective through the contracting period which USDA has previously issued. Such periods run from between 3-10 years depending on the type of programs accepted by the farmer putting his land in the crop program.

The Committee for Economic Development has launched its own version of the solution of the farm program which involves a social settlement of the issue. This non-official group would have the government buy, rent or lease farm lands which constitute farm holdings which are unprofitable and unlikely to be profitable and make some provision for the exodus of farmers from their land into industry or other pursuits.

The CED has thus far never broken the ice on farm problems and what it is now advocating is one which has been so well stated by none other than the leading soil economist of USDA, Dr. Sherman Johnson. He has consistently advocated over a long period of years that in many sections of the nation land was being devoted to farm crops which never could be operated profitably under modern farming techniques and should be either retired from old field crop farming or put into pasture or forest land.

Oregon Applicators Short Course Set

CORVALLIS, ORE.—The seventh annual Oregon Chemical Applicators Short Course will be held Jan. 27-31 at Withycombe Hall, Oregon State College here.

L. C. Terriere, department of agricultural chemistry and program chairman, said that the course is open to anyone, but it is particularly aimed at Oregon spray operators. Beginners in the business must pass a licensing exam on their knowledge of chemical weed control, and the exam is given at the end of the short course, he said.

Field Mouse Infestation

SACRAMENTO—An infestation of field mice centered in the Klamath River basin has spread into California and is causing concern in Siskiyou and Modoc counties in this state. The rodents caused more than $2,000,000 damage in Klamath County, Oregon, causing federal, state and county authorities to join in a move to effect control. Laboratory facilities have been established at the Klamath Experiment Station.

WAREHOUSE BURNS

GERVAIS, ORE.—A storage warehouse owned by the Chas. H. Lilly Co. and located here recently burned to the ground.

BIG DAVE SAYS,

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DAVISON GTS*

*DAVISON Granulated Triple Superphosphate

EASY TO HANDLE—Because of its uniform particle size it spreads evenly and uniformly and is perfect for direct applications. Does not deteriorate in handling, packaging or storage.

IDEAL FOR FORMULATIONS—Because it is easy to blend. Excellent for alkaline goods and especially recommended for O-25-25.

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Producers of: Catalysts, Inorganic Acids, Superphosphates, Triple Superphosphates, Phosphate Rock, Silica Gels, Silicofluorides, Rare Earths and Thorium. Sole Producers of DAVCO® Granulated Fertilizers.

At Fort Collins, Colo.

Dealer-Specialist Makes Good Use of "Ag" Degrees

By JESS BLAIR
Croplife Special Writer

At Ft. Collins, Colo., Randolph McMurtry operates the McMurtry Seed & Fertilizer Co. on the principle that as a specialist in agricultural chemicals he should place promotional emphasis on these products.

The fact that his business has increased five times over what it was only a few years ago appears to be proof that Mr. McMurtry is following the right procedure.

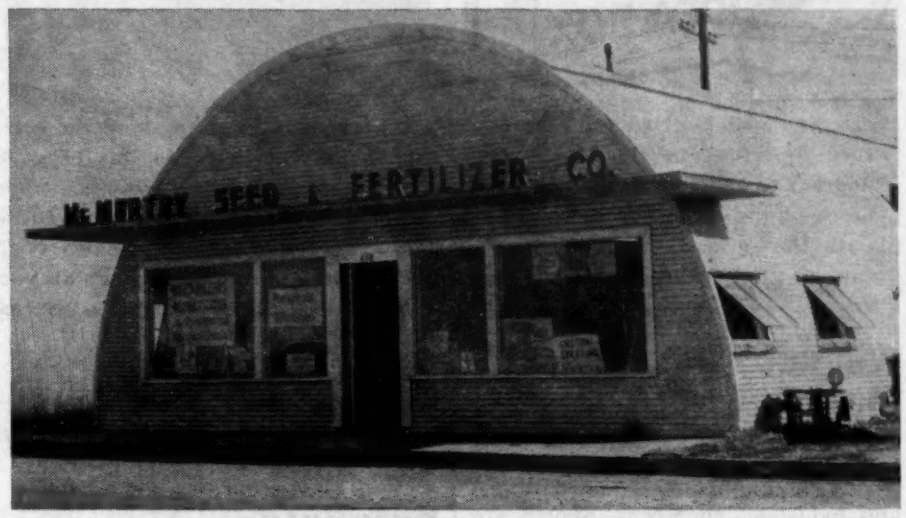
"I saw a need here for specialized work with fertilizers and insecticides, and have devoted my time to developing this work," Mr. McMurtry says.

Though he does a sizeable business in buying and selling seed, he says that the biggest profits come from the chemicals. He sells several brands of fertilizers, insecticides and herbicides, besides a considerable amount of livestock remedies.

Mr. McMurtry's idea in starting his store several years ago was to serve as a middle man between the farm experts and the farmer. Agriculture is moving ahead and technical advancements come fast. The busy farmer has little chance to stay abreast of new products and methods, Mr. McMurtry says.

"I decided to put in a store and then show the farmer what he needed," said Mr. McMurtry, "I intended to go to the field and help my customers with the application, because I had seen a lot of fertilizer wasted by being the wrong kind or applied by haphazard means."

The first year Mr. McMurtry lost money. He almost broke even the second year, and showed a small profit the third season. In the last five years he has made a nice profit each time, and is steadily expanding the business.



ATTRACTIVE STORE—The McMurtry Seed & Fertil'zer Co., Ft. Collins, Colo., has an attractive retail store as indicated in the picture here. Randolph McMurtry believes in specializing in agricultural chemicals and his custom spraying service is one of the most profitable parts of his trade.

A large part of his orders now come from the custom spraying service. During the warm months he is kept busy every day spreading fertilizer, spraying for insects and also treating range and dairy cattle for pests. This spraying of livestock has become a very lucrative sideline the last two years.

Mr. McMurtry is in partnership with a man who operates some of the spray rigs. The store also owns three pull-type rigs which are rented to farmers. Some landowners prefer to do their own work in putting on fertilizer and insecticides, so they rent the machines from Mr. McMurtry. Usually he advises them on the kind of material to use, adjusts the rigs for proper distribution and even goes to the field to get a new customer started.

In addition, he has several small push-type spreaders which are rented to town people to put down grass seed and fertilizer. On none of the equipment does he get a large fee, but keeps them to increase the sale of chemicals.

Before entering business for himself, Mr. McMurtry perhaps had the ideal type of background for this work. He had graduated from two agricultural colleges, Oklahoma A&M and Colorado A&M, and was employed by the U.S. Department of Agriculture for five years. He had also taught vocational agriculture for many years and worked with both the students and their parents on farm projects.

"That training has been of tremendous help," he said. "I still must keep up with the latest developments, but that comes easy. By keeping in close touch with the agricultural chem'cal field, I can often learn of new trends, such as what products will be coming on the market. Then I pass this information on to my customers."

One of the trends which Mr. McMurtry helped to speed along is the increase in higher analysis fertilizers and insecticides. When a better one is available, he has learned much about it and tries it out on some of the area fields.

Perhaps his busiest time is during the warmest months when insects are busy in the fields. He sprays for many kinds, inc'uding alfalfa weevils, Mexican bean beetle, sugar-beet webworm, and many that attack other crops and orchards.

One reason for the increase in business has been the efficiency of the spraying service. Mr. McMurtry makes a legitimate profit, but because he knows exactly what to apply and how to do it, he can often get results on the least material possible.

To prove these claims, he keeps records on the various jobs. When he spreads fertilizer on a field, he keeps a close watch on the crop, noting the color of the leaves and how the plants are growing. Is there enough nitrogen, or does some other element seem to be lacking? If he thinks the crop should have had more fertilizer, then the next season he gets the farmer to put on an extra hundred pounds per acre.

As stated in the beginning, the

(Continued on page 11)

SPECIALIST — Randolph McMurtry puts his two degrees from agricultural colleges to good use in his business, the McMurtry Seed & Fertil'zer Co., Ft. Collins, Colo. Mr. McMurtry says that a farmer can make the most efficient use of farm chemicals when they are applied exactly at the time and in the proper amounts recommended.

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

The credit problem has put more farm stores out of business than any other one thing, says C. W. Grant of Lordsburg, N.M. Mr. Grant owns and operates Grant's Feed Store, which handles fertilizer, insecticides and related farm supplies. He operated successfully through a six-year drouth and so can speak with experience about business adversities.

"I saw little and big stores go out of business," he says. "I decided the only way to survive was to handle a wider variety of sales, reach more customers, and cut out the credit sales altogether. I don't even give 30 days credit, because too many customers don't know how to count time. Thirty days to them means six months or a year, or maybe never."

Another farm supply dealer in the area has $40 000 on the books and he will be lucky to collect 70% of it, he admitted to Mr. Grant.

"He is a good dealer and tried to help the drouth-stricken farmers and ranchers," says Mr. Grant. "But no one can suffer a 30% loss in his credit business and remain solvent."

When a customer says he forgot his check book, Mr. Grant has a quick solution. He has a supply of checkbooks from area banks, and always has one handy. Mr. Grant says his firm credit policy works. He has lost very few customers, and many of them who would buy on credit now manage to borrow the money from lending agencies.

"I'm still in business and am making money," he says. "A store owner will lose some business at first, but much of it will be the kind that's a drain on his profits anyway."

Mr. Grant's sales are as large as ever. But in reducing credit losses to less than 1%, his profits have been on the increase.

California Distribution

The Range Fertilization booklet, published by the California Fertilizer Assn., is now in its second printing. A product of the association's soil improvement committee, the booklet contains 24 pages of easy-to-read text and 17 photographic reproductions.

First printed in September, the initial 15,000 copies were distributed in about 30 days to range owners and livestock producers of the west, through the fertilizer industry. The demand for more copies, as measured by requests filed with fertilizer distributors, has necessitated a second printing of 5,000 copies, according to R. L. Luckhardt, vice chairman of the soil improvement committee, and chairman of the sub-committee which prepared the booklet.

Subjects covered include — "You Can Have Earlier Grazing," "Increased Palatability Works for You," "Get More Feed from the Same Acres," "Reduce Your Labor Costs," "Finish Lambs on the Range," "Fight Both Drouth and Cold Weather," "Improve the Quality of Your Forage," "Save Your Soil and Your Rainfall," "Make More Hay," "Make Irrigation Pay," "Fertilizer Can Carry Over," "There Are Three Plant Foods for Your Range," "Answers to: How Much? When? Which?", and "How to Apply Fertilizer to Rangeland."

Mr. Luckhardt announced that interested California livestock producers, and others who may be interested, can obtain copies, while they last, from their local fertilizer suppliers.

What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6665—Package Design

Newly designed packages are being used by the Diamond Alkali Co. for packing and shipping its agricultural and industrial chemicals. Shown are the 5-gal. metal drums containing the company's Premium Brand Grain Fumigant. The design features a trademark adopted earlier this year in a standard contrasting color combination of regal red and black. The company's line of more than 100 chemicals in packages is now identified with the new design. Secure details by checking No. 6665 on the coupon and mailing it to this publication.

No. 6664—Copper Sulphate

The Republic Chemical Corp. has prepared a brochure on "Copper Sulphate" which describes in detail the method used to produce Copper Sulphate in a modern plant. It gives statistics as to quantities used in industry, agriculture and export. It describes the various grades produced, such as large crystals, medium crystals, granular, snow and micro-pulverized, free-flowing, noncaking instant powder. Detailed specifications and uses are listed. Secure details by checking No. 6664 on the coupon and mailing it to Croplife.

No. 6662—Rotary Valves

Rotary valve literature describing Day style "A" rotary valves has been announced by the Day Co. The bulletin describes the various applications for the company's valves, types available and illustrates actual installations, complete with dimensions, specifications and capacities. To secure a copy check No. 6662 and mail it to this publication.

No. 6666—Floor Stand

A floor stand with customer access from four sides has been created by the Container Corporation of America for Swift & Company's plant food division. The merchandiser occupies a floor space of 2 ft. by 2 ft. and provides 16 sq. ft. of shelf facing and 8 sq. ft. for advertising and merchandising messages. Construction is a combination of corrugated board and spiral wound tubes. Company officials say that the unit can be set up in five minutes. The unit holds seven cases of Swift's garden supplies. Check No. 6666 on the coupon and mail it to secure details.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 5839—Belt Conveyor Idlers

New literature on belt conveyor idlers manufactured by the C. O. Bartlett & Snow Co. is available without obligation. An 8-page bulletin describes the line of idlers including troughing, flat, self-aligning, rubber disc and return designs; 4-, 5- and 6-in. diameter rolls fitted with either Timken or "sealed for life" bearings; construction; and lists standard sizes, dimensions and weights. Check No. 5839 on the coupon and mail it to secure details.

No. 5825—Laboratory Mixer

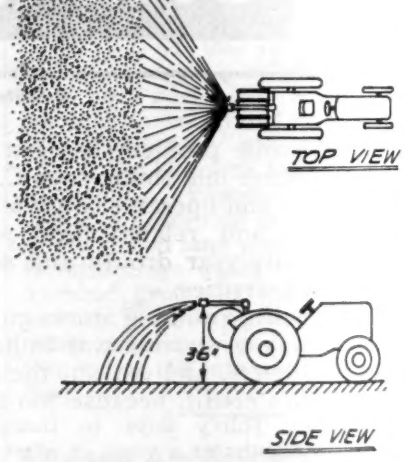
The Rapids Machinery Co. has introduced its new Marion laboratory mixer, designed for use in the laboratory or as a production machine. The mixer is a "compact unit that features the same cross-blending mixing action found in the larger standard and industrial units," company officials said. Inside dimensions measure 24 in. long, 12 in. wide and 16 in. deep, with an over-all length of 36 in., a width of 19 in., and a height, with legs, of 34 in. It has a capacity of 2 cu. ft. or approximately 50 lb. and it is available in either mild steel or stainless steel and comes equipped with a ¾ h.p. motor, iron legs, and a sponge rubber-gasketed cover. Secure complete details by checking No. 5825 on the coupon and mailing it.

No. 6660—55-Gal. Steel Drums

Vulcan Containers, Inc., is offering a line of open head and closed head, 55-gal. steel drums, manufactured to comply with Universal Standard dimensions, to meet Interstate Commerce Commission and Uniform Freight Classification specifications, company officials have announced. A variety of types and sizes of openings, fittings and plugs are available in the different style drums. The open head style will be furnished with the lever or bolt locking covers. In addition to standard colors and for product and company identification, the drums can be decorated, striped or painted any solid color. Details will be supplied without charge. Check No. 6660 on the coupon and mail it to Croplife. Please print name and address.

No. 6659—Spray Nozzle Tip

The Spraying Systems Co. announces a new spray nozzle tip for use with its GunJet No. 2 or No. 42 spray guns that will project a spray in a flat spray pattern up to 42 feet wide. In use the spray gun is mounted on the rear of the tractor about 3 ft. above ground level and pointing to the rear. In this position, the spray gun will broadcast-spray grains and grasses and do related types of operations. The spray nozzle tip is identified as the DDOC tip, and is made with four orifices to provide equalized distribution of the spray throughout the pattern area, it is claimed. For details check No. 6659 on the coupon and mail it to Croplife. Please print or type the necessary information.



No. 5858—Belting

"Hycar" is the trade name of a synthetic rubber that has been adapted to conveyor belting by the Globe Woven Belting Co., Inc. Superior resistance to animal fats and vegetable oils is claimed. Company officials state that the belting stays pliable at —30° to —40° F. and maintains its stability at 250° F. Widths up to 48 in. and 3-, 4- and 5-ply weights are available. Several colors are provided. Check No. 5858 on the coupon and mail it to secure additional information.

No. 5859—Hoist Carrier

A cab-controlled twin-hook hoist carrier provided with an auxiliary hoist for dumping has been built by the Cleveland Tramrail Division, the Cleveland Crane & Engineering Co. Of weatherproof construction for outdoor service, the unit will pick up tote boxes of materials, haul them and empty by tipping. Various bulk materials may be handled. Hoisting

Send me information on the items marked:

- ☐ No. 5825—Laboratory Mixer
- ☐ No. 5826—Rat, Mouse Control
- ☐ No. 5828—Insecticide
- ☐ No. 5833—Electric Vibrator
- ☐ No. 5839—Idlers
- ☐ No. 5843—Bulk Materials
- ☐ No. 5858—Belting
- ☐ No. 5859—Hoist Carrier
- ☐ No. 6658—Solutions
- ☐ No. 6659—Nozzle Tip
- ☐ No. 6660—Steel Drums
- ☐ No. 6661—Stearyl Alcohol
- ☐ No. 6662—Rotary Valves
- ☐ No. 6663—Liquid Fertilizer
- ☐ No. 6664—Copper Sulphate
- ☐ No. 6665—Package Design
- ☐ No. 6666—Floor Stand

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COMPANY .....

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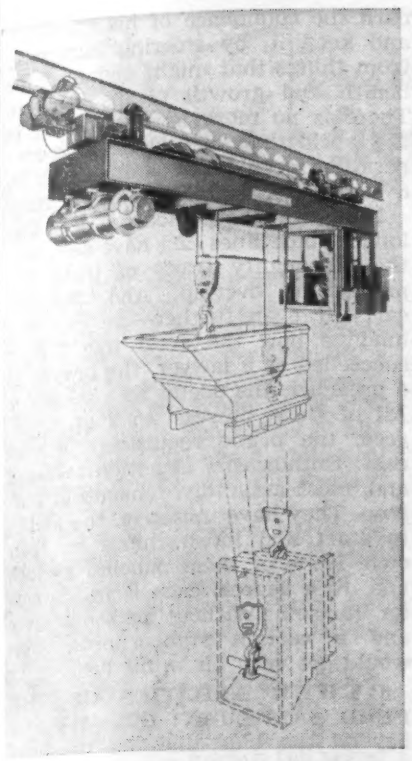


and travel motions are controlled by the cab operator. The main hoist alone raises or lowers a tote box in upright position. Hoist speed is 35 f.p.m. Travel speed is 250 f.p.m. Variable speed drum controllers are previded. The capacity is 12,000 lb., i.e., 6,000 lb. per hook. Other carriers of different capacities can be furnished. Secure details by checking No. 5859 on the coupon and mailing it to this publication.

No. 5828—Insecticide

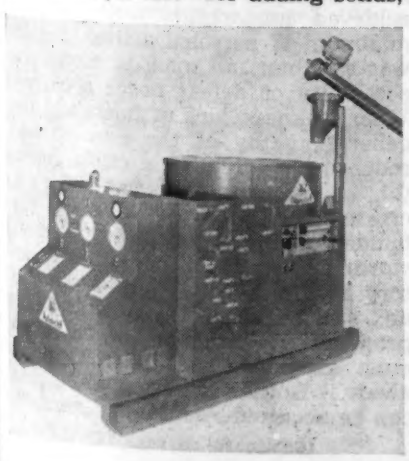
A new insecticide, "6% Chlordane Dust," in a refillable squeeze duster and two new sizes for the "Hess Bomb" aerosol have been placed on the market by Hess & Clark, Inc. The chlordane dust product is designed for use on household, lawn and garden insects. The container holds 8 oz. and a 2½ lb. refill is also available. Bomb aerosol sizes are 7 oz. and 15 oz. This product contains strobane, a hydrocarbon. Dealers may secure details by checking No. 5828 on the coupon and mailing it to this publication.

No. 6661—Flaked Stearyl Alcohol

The Hodag Chemical Corp. has announced the production of a flaked, technical grade stearyl alcohol in bag form in the quantity requested by the user. Stearyl alcohol, according to the company, has possible application as an intermediate for insecticides and for several other uses. An information sheet listing specifications, physical and chemical properties, and other data, is available. Check No. 6661 on the coupon and mail it to Croplife.

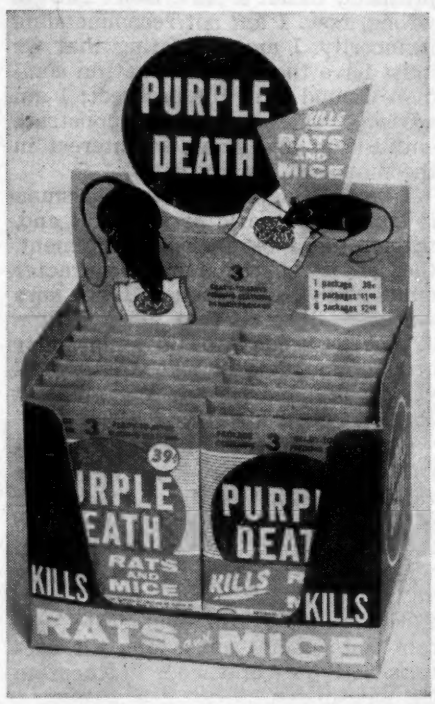
No. 6663—Liquid Fertilizer Plant

A skid-mounted, batch-type, complete analysis liquid mixed fertilizer plant featuring automatic operation has been introduced by the Barnard & Leas Mfg. Co., Inc. Called by the trade name, the "Complete Autobatch Skid Plant" the unit has a "B & L Autobatch" control unit for producing neutral solutions, a scale-mounted "B & L Liqualizer" for adding solids, automatic solids handling system with cycle control, central routing panel, completely wired and pre-piped internally, all mounted on a heavy duty welded I-beam skid frame. It is designed as a complete package for ready installation by connecting to raw material supply, and electrical connection. A minimum of auxiliary equipment is required for the over-all operation, company officials state. A wide range of complete analysis liquid mixed fertilizers containing nitrogen, phosphorus and potash can be produced, it is claimed. Herbicides, insecticides and trace elements can be added to the formulation. Complete information on batch-type processing of neutral solution complete analysis liquid mixed fertilizers is available. Check No. 6663 on the coupon and mail it to Croplife.



No. 5826—Rat, Mouse Control

"Purple Death" is the trade name of a rat and mouse control which has been placed on the market by the O. E. Linck Co., Inc. Company officials say that the product is high in proteins, minerals and vitamins, to make it attractive to rodents. The toxicant used is said to be tasteless and odorless. A single good feeding is said to assure certain kill. The product is packed in polyethylene lined feeding stations, each station being capable of killing 6-8 rats or 10-15 mice. Dealer mark-up on the product is about 48%. Secure complete details by checking No. 5826 on the coupon and mailing it to this publication.



No. 6658—Non-Pressure Solutions

The Broyhill Co. has available literature about its equipment for non-pressure nitrogen solutions and balanced mix solutions. Company officials said that the applicators described are designed for "easy and trouble free applying of liquid fertilizers." The units are for sale or rent to customers. The literature, including prices, is available without charge. Check No. 6658 on the coupon and mail it to Croplife. Please print or type.

No. 5833—Electric Vibrator

The Cleveland Vibrator Co. has announced a redesign of its RC-50 electric vibrator, used on bins, chutes and hoppers for handling all types of dry or viscous bulk materials. The purpose of the design change, the company stated, is to provide a more powerful unit that is easier to handle and install. The new unit develops a maximum vibrating impact of 2,250 lb. This compares with 1,440 lb. with the old design. The unit is 15 lb. lighter, weighing in at 84 lb. The over-all length has been reduced from 14¾ in. to 13⅛ in. The mounting base is changed for easier installation and to provide a better support for the vibrator. Heavier duty wiring is now used. The RC-50 idles at 200 watts on 220 volts. Models 110, 440 and 550 volt are also available. Secure details by checkinig No. 5833 on the coupon and mailing it to this publication.

No. 5843—Bulk Materials Movement

A new 32-page product bulletin, "Airstream Conveyors — the Automatic Answer to Bulk Handling," has been published by the Dracco Corp. Bulletin No. 530 presents detailed technical information on how pneumatic conveying of bulk materials can be utilized. System diagrams of typical installations point out the applications of the conveyors. More than 70 illustrations are included. Materials—both granular and powdered — which can be handled are listed. A copy is available without charge. Check No. 5843 on the coupon and mail it to this publication.

Soil Builders Awards Presented to Editors

CHICAGO, ILL.—Ralph D. Wennblom, associate editor of the Farm Journal, Philadelphia, and the staff of the Georgia Farmer, were honored Dec. 4 as the nation's outstanding agricultural writers who most effectively have carried messages of soil building to their farm magazine readers.

The Soil Builders Award for Editors plaques were presented by the National Plant Food Institute, at the annual meeting of the American Agricultural Editors' Assn., at the Conrad Hilton hotel.

Mr. Wennblom was honored as the winning writer among magazines with more than 300,000 circulation and Tom Anderson of Nashville, Tenn., publisher of the Georgia Farmer, received the award, on behalf of his staff, winner in the category of magazines with less than 300,000 circulation.

The Institute annually sponsors the award in a nationwide contest in cooperation with the association. Louis H. Wilson, secretary and director of information of the Institute, made the presentation.

Mr. Wennblom is a native of South Dakota, and attended South Dakota State College. After three years in the army, he served as assistant extension editor at South Dakota State College, and later as a radio farm director at Sioux Falls, S.D. He joined the staff of the Farm Journal in 1948.

Mr. Anderson is a native of Tennessee and a graduate of Vanderbilt University. He was southern advertising sales manager for Southern Agriculturist, before he bought the Arkansas Farmer in 1947. In 1953 he established the Mississippi Farmer, and in January, 1956, the Georgia Farmer.

DEALER-SPECIALIST

(Continued from page 9)

store specializes in farm chemicals. They make up 90% of the sales, yet there is a small garden supply department. Mostly it's a sideline, but the items are of the long profit kind and do more than pay their way.

"A small supply of other goods helps out," said Mr. McMurtry, "but my business is selling farm chemicals, and I don't want to sell anything that will interfere with that."

Since he has become a specialist, his advice is often sought by agricultural leaders of the area. Some of this work may take valuable time, but eventually any type of service, free or otherwise, will pay off in increased sales.

"Farmers are becoming specialists nowadays," said Mr. McMurtry. "They are either running dairies, raising chickens or cattle or field crops. To help them with their technical problems, the business man must also become a specialist.

"Right now I can't think of any field with a greater future than the agricultural-chemical industry."

Utah Dealer Lauds Fertility Program Undertaken Successfully by Customers

The Corrine community of northern Utah is often pointed out as having a remarkable group of farmers. The small village is located along the edge of Great Salt Lake where the tule grass flats stretch away barren and monotonous for many miles.

Several years ago the farmers found that low places in the fields were developing salt spots that were ruining the land. They met together, formed a drainage district of their own, and bought draglines and other equipment. Then they hired their own engineers and drivers, and also pitched in with their farm tractors to help.

After a concrete tile drainage system was installed, they then proceeded to level their land and build back the soil fertility. Many business leaders rendered what assistance they could in the form of advice and credit.

One of these is William Tyson, farm chemical dealer at nearby Brigham. He is especially high in his praise of the Corrine farmers.

"The way they built up the fertility of the land is amazing," he says. "After leveling the fields, they grew heavy crops of green forage to turn under. Then they started using gypsum on these sterile spots, and later applied heavy applications of phosphorus and nitrogen. Today they have some of the finest farms in Utah."

Mr. Tyson likes to point with pride to the farmers with whom he has worked very closely. About 20 of these families were driven out of California during World War II, and came to Utah looking for land to buy.

They bought some of the worthless, salt land, cleared off the coarse grass and then put in drainage and leveled the fields. Now 12 years later the fields are like beautiful gardens. Last summer their barley crop threshed over 100 bu. per acre, and other crops were equally as productive.

"It's a good example of what farmers can do working together for the common good," Mr. Tyson says. "That land didn't respond to fertilizer at first, but now it's so rich in humus that hundreds of pounds can be used effectively. The yields they get are almost unbelievable."

The farmers bought much of the land for $15 an acre. Now after several years of good farming practices, it is valued at more than $500 per acre, some reports indicate.

The Salesman Is a

Five-in-One Man

By Eugene C. Holcombe
The Borden Co.

EDITOR'S NOTE: The most important people in farm supply merchandising business are salesmen, stated Mr. Holcombe in a talk before a trade association gathering. No firm can be any more successful than its sales force, Mr. Holcombe said. The accompanying article is the text of the talk by Mr. Holcombe, who is director of advertising and sales promotion, special products division, the Borden Co.

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All business sits on a three-legged stool. The three legs are people, products and programs. However, if we contemplate this assumption for just a moment, it may occur to us that, actually, the stool is very similiar to the one on which we used to sit when we milked cows years ago—a one-legged stool--people. I say this because the other two, products and programs, come from people. So, let's talk about the importance of people to a business. More specifically, let's talk about some of the most important people in business—salesmen.

I know of no more honorable calling than that of the salesman. I know of no profession that calls for sounder judgment, more astuteness or greater courage. Any salesman who doesn't throw out his chest just a bit when asked what he does for a living, should get into some other field. In fact, I am acquainted with the head of one of our largest companies who takes great pride in writing "salesman" on any paper that asks his occupation.

The salesman certainly has to be a Jack-of-all-trades, and this story demonstrates that point:

Back about 1942, an acquaintance of mine who was a salesman, was called in by his top management one day. They told him that they had decided to go on a program wherein sales men would be selected by means of aptitude tests. The firm doing the test had "patterns" of successful bank tellers, attorneys, plant foremen and many other assorted occupations. But they hadn't yet found just what made the ideal salesman click. So, my friend was asked whether he'd consent to be the guinea pig. He agreed on condition that he be permitted to see the results of the test.

The test involved a total of 1,000 questions and took a full eight-hour day, at the end of which, of course, my friend was utterly exhausted.

A couple of weeks went by and, finally, the salesman was called in for a conference. He was permitted a visit with the psychologists who had conducted the tests and was presented with a small but very interesting chart.

First of all, the psychologists had established the fact that the man was undoubtedly a very successful salesman. Of course, his sales record would have told them that! In addition, the chart listed 20 representative occupations. Across the page from each occupation was drawn a line in color. A blue line indicated that the subject might have been successful in that field as well as in sales, and the longer the blue line, the greater would have been his success.

Ever since I heard the story many years ago, I have often thought of the four longest blue lines on my friend's chart.

SALESMAN RESEMBLES PREACHER: The first long blue line was opposite the word "preacher." Surely, it is not difficult to see the strong resemblance of the sales personality to that of the preacher and we can easily imagine the size of the fat commission checks that might be earned by Billy Graham, were he to hit the road with sample case and price list.

Yes, the good salesman is a preacher—a missionary—in every sense of the word. Salesmen went West right behind the covered wagon, braving the rigors of frontier life to bring to the Indian and the sod-buster the gospel of better living through the gadgets and gimmicks they were selling. You have no idea of the discomforts those old boys endured, just to make a buck. But they possessed the zeal of the true preacher, the enthusiasm and sincerity of the missionary.

Today, the good salesman preaches of increased profits through adherence to the golden rule and to the commandments of sound business management. He works to convert the prospect, exhorting him to turn away from business sins, and paints graphically a rosy picture of the ultimate rewards that come from thrift in management, honesty in advertising and persistence in sales effort.

SALESMAN RESEMBLES LAWYER: The next occupation in which our salesman friend might have found success was as a lawyer. Here again we can call to mind the names of famous individuals who, had they elected to follow Elmer Wheeler instead of Blackstone, would have achieved tremendous personal success as salesmen. Let's compare the two and see where the parallel lies.

The lawyer must know, first, the basic principles on which all law is founded. The salesman must know the basic principles of sales psychology which apply to all sales efforts, no matter in what field.

The lawyer must approach each case as a new and different challenge, exercising care and deliberation, to make sure that he goes to court armed with every minute point germane to the issue at stake.

The same meticulous approach to a difficult prospect should be made by the salesman, because he cannot hope to plead his case successfully before his one-man jury if he has not armed himself with the facts and evidence needed to bring about a favorable verdict.

As an example of the similarity of the legal profession to the sales profession, here is a remark made in a recent issue of Life by Edward Bennett Williams, a famous New York attorney: "I think the whole world is divided into engineers and salesmen. When I was at school I was miserable in science and had no feeling for math and couldn't drive a damn nail. I guess law was my outlet for salesmanship."

Salesmen and lawyers are persuaders, above all else. They cleverly marshal all their facts, then present them systematically and carefully in order to persuade the jury to act favorably. In fact, it has been said that a successful sales presentation is 80% preparation.

SALESMAN RESEMBLES ACTOR: The test revealed, next, that our friend would have enjoyed great critical acclaim as an actor. Before we scoff at this apparent incongruity, let us compare the star salesman with the star actor.

I once heard it said of a certain sales executive, "He's 'on stage' every hour he's awake." Think of it, now, how often do we, during our first interview with a new prospect, really act natural? We put our best foot forward, we put on our company manners, we watch our grammar, we flip open sales manuals with a dramatic flourish. As they say in the theatre, we are "chewing up the scenery" for all we're worth. As a matter of fact, I think that one of the greatest attributes a salesman can possess is the ability to quickly adjust his personality to that of his prospect, to act a part. Don't get me wrong, now. I am not recommending insincerity. I am suggesting that we must have the ability to get on common ground with the prospect; I am advising salesmen to demonstrate enthusiasm and show an interest in the man and his problems.

I have to agree that the salesman is truly a dramatic personality; and, to back up a bit for just a moment, the actor shares many character traits with the preacher. I am sure we will all agree that when Fulton J. Sheen decided to turn his collar around, the theatre lost what might very well have become the greatest Hamlet in all history.

SALESMAN RESEMBLES DOCTOR: Another long blue line (and it was one of the longest) was after the word doctor. What do the salesman and the doctor have in common? I can sense your drawing an immediate comparison faster than I can speak. I will enumerate certain main points concerning the doctor's activities and we'll fit them to the salesman.

First of all, the doctor has to have professional know-how in every phase of his business. He must have the ability to ask the proper questions so as to arrive at the proper diagnosis. He must then, of course, know how to prescribe what's best for the patient. Notice that—"best for the patient"—the good salesman prescribes what's best for the customer.

The doctor must have the unquestioning confidence of his patient and do everything possible to maintain sound health and guide the patient away from future illnesses.

So, also, must the good salesman earn the confidence of his customer, and keep it, by steering him away from things that might endanger the health and growth of his business. There is no more loyal customer in the world than one whose sick business has been restored to health by a competent doctor of salesmanship.

Now, we have discussed the four longest blue lines and have seen how the personality traits of these five professions overlap. And, we can carry it even further—we can well imagine how the actor might have succeeded as a lawyer, the lawyer as a preacher, the doctor as a salesman. All of them possess, to a great degree, the prime requisites for success: Enthusiasm, attention to detail and, most assuredly, tenacity of purpose. They have initiative, the ability to start and finish things on their own. None of them punches a clock and, to a degree, each is in business for himself. Without personal drive and a certain stubbornness, none would get very far in his field.

OTHER ABILITIES OF THE FEED SALESMAN: But, let's look beyond the blue lines on the brief test chart. What about the other "blue lines" of the sales personality? What other abilities must the salesman possess, in order to be what we have been referring to as a good salesman, the things that raise him above the level of a mere order taker? Now let us consider the good salesman. Remember, we are talking about the best, the kind of salesman we'd all like to be.

To be the absolute tops, the best, to talk intelligently to the prospect, to ease him around to signing the order, this salesman must have a many-faceted personality. He must be a purchasing agent, a market analyst, a director of advertising and sales promotion, a superintendent, a display manager, a traffic manager, a merchandising manager, and last, but by no means least, a credit manager!

And, the good salesman must be right up to the minute on all the latest developments in every one of those fields. He must be—and let's remember that this is the best way for the salesman to get and hold business—a coach, a counsellor, a general manager. In short, he must be all things to all men he serves or hopes to serve. Only in this way will he build confidence and tie the customer to him with hoops of steel.

Now, where do we find this superman? Is he born or do we make him? Does he, like Topsy, just grow? Well, it's a little of each.

THE SALES PERSONALITY: I do believe there is such a thing as the "sales personality" and everyone who has it from the start has a running jump towards success in selling. But, I have seen top salesmen, men who headed their employers' sales standings month after month, who, on a basis of "personality" would get lost in a group of three people. How did they do it? Not with "enthusiasm" alone, which I used to rate as the salesman's most potent sales weapon, but with the one thing all salesmen must have—the will to work. Nothing—positively nothing—will take the place of determination and stick-to-it-iveness, no matter in what field.

George Washington, without doubt one of the half dozen or so really great men this country has produced, achieved immortality with a very minimum of personal ability. But he was a fighter, all man, to whom the possibility of defeat never occurred. When sickness, lack of funds and the general apathy of the country had reduced his forces to a pitiful handful, he gathered up what he had, crossed the Delaware River in the middle of the night during a sleet storm and scored a sensational victory at Trenton that turned the tide and started us on the road to independence. He had the one thing we must all have—and the nice thing about it is that it is something that can be acquired—determination. And,

(Continued on page 15)

RINGING THE CASH REGISTER

Premium Ups Sales

A farm supplier test marketed one of its products last fall by giving free with each package one pair of work gloves. It was found that sales increased 241% in widely separated areas where the glove premium was used. The work glove was a leather-palm style ideal for farm and garden work. One glove was displayed on the outside of the package and one was inside. A special label and store banners helped promote the free glove offer. The promotion was so successful that the company is using an expanded promotion this fall.

$1.25 Per Letter

It costs about $1.25 to write a business letter. That's what a recent survey of 200 business firms showed. The study included such letter writing costs as dictation, stenographic time, overhead, mailing, stationery and filing. This is a surprising figure for one would not expect a letter to cost so much. It behooves operators to give some thought to making more use of form letters, especially for acknowledgement purposes, and to the telephone if the communication is of a nature which does not require a record.

Doing Business With

Oscar & Pat

It was a cold, snowy, miserable December afternoon. The skies were grey and much of the snow melted as it hit the roads but on cars and steps it built up to slushy little mounds. The short, thin salesman came into the warmth of the Schoenfeld & McGillicuddy salesroom and a smile suddenly broke briefly over his worried face.

"Ah, it's nice and warm here," he said, opening his grey worn tweed coat. He smiled again, this time at Tillie. He held his snow wetted hat in his hand. "Who does the buying around here, Miss?"

Tillie Mason, the plump, ulcerish bookkeeper looked up from her typing. "Mr. McGillicuddy," she said truthfully, pointing toward the railed enclosure, where only Oscar sat, but's he's out."

The salesman apparently misunderstood her. Thinking Oscar was Pat he squared his shoulders, grabbed his thick briefcase tighter and marched over to the railing. Seeing him approach, and sighting the briefcase under his arm, Ann Hydrous, the maltese cat quickly tucked her head between her paws as she sat atop the big safe. She expected something to happen.

"Good morning!" called the salesman loudly, seeing that Oscar was figuring and quite absorbed in it.

Oscar continued figuring as if he had not heard anyone. This was part of his "cooling off" salesman treatment. He liked to have them wait, until he got ready to talk to them.

"Harumph!" coughed the salesman loudly.

Slowly Oscar laid down his pencil and swung around in his swivel chair. His cold grey eyes quickly spotted the salesman's briefcase, his expectant expression, his eagerness to start his sales talk.

"We are buying—nottink!" he snapped. "Not till after the first of the year. And maybe not for two months after that."

The salesman swallowed hard. "B—but," he stammered, taken off guard for an instant, "you—you don't even know what I've got to sell. You—"

"I don't need to know," Oscar said coldly. "Ach, we have been buying too much aroundt here. We buy too much all the time—especially that, that Pat. He-he has bought just about everything I guess except a Schputnik."

"A—a sputnik!" gasped the surprised salesman. "Oh my, I've got something better than that for you fellows. I've got a line of latticework, row markers and garden supplies such as tomato covers. People are buying more of them every year, Mister. Folks like to mark things. If they plant two kinds of carrots, they want to know which is which. You can use that for sales appeal."

"We are buying nottink!" Oscar reiterated. "Look at those shelves, chockful of merchandise, right up to the ceiling. What does it mean? It means, ach, we've got too much. Too much!"

"It could also mean that you've gotta get off your—I mean you have to put forth more selling effort," suggested the salesman. "People can sell if they make up their minds to do it."

"Sell?" echoed Oscar bluntly. "We sell too much. Our trouble is to collect for it. Farmers got too much of your money. I want it over there." And he pointed out the window toward the bank down the street.

The salesman had now spotted the huge green bullfrog piece on Oscar's desk which held retrieved paper clips. His eyes lighted. "Oh," he said, "your good luck piece, eh? I've got some too." He reached into his pocket and brought forth a rabbit's foot. "I carry it with me all the time. Lots of times when I squeeze it I get a sale, just like that. Do you squeeze the green bulldog?"

"I don't squeeze nottink," Oscar growled hostilely. "I save paper clips that other people waste. I save so many we never have to buy any. Und rubber bands, too. If more people did that they would have extra money to bank."

"But you must have some lucky pieces," the salesman said. "Almost everybody has. I've got three four-leaf clovers in my pocketbook. I've got an 1893 silver dollar, too."

"It's silly," Oscar sniped. "That don't affect sales."

"It does for me," said the salesman. "When things go real, real bad, I bring out a picture of a white cat that I look at. That gives me inspiration to go on."

Oscar's face got colder and colder. Disbelief showed on his face.

"When I think of quitting," the salesman said nervously, "I always look at a picture of my mother-in-law. That's a real bracer upper. I think how I'll have to live with her, if I lose my job and can't get another, and that scares me so much I go out and make five extra calls a day, even late into the night."

"You should make her come and live with you and make her pay boardt," Oscar advised. "Then you are the boss!" Oscar slowly raised his eyes to a large sign on the wall near the spot where the salesman stood.

The salesman got the idea. He looked, too. Copy on the sign said, "You here again? . . . there's another half hour shot to . . . !"

For a moment the salesman stared unbelievingly. Then he shoved his hand into his pocket, grabbed his rabbit's foot and walked slowly outside without even saying farewell.

The snow fell on his downcast face as he trudged toward his three-year old automobile. "Maybe, Mother," he said slowly, "it wouldn't be so bad living with you, taking orders from you. It—it could never be as bad as this."

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What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

More labeling rather than less is in the future of the pesticide industry, according to a U.S. Department of Agriculture spokesman at the annual Rutgers University pesticide dealers' conference.

Fire destroyed the main section of the G.L.F. Cooperative's insecticide and farm chemicals building at Big Flats, N.Y.

The U.S. Department of Agriculture set an allotment of 38,818,381 acres for the 1958 corn crop in the 932-county commercial corn producing area in 26 states. The 1957-crop corn allotment was 37,288,889 acres.

Six potash producers who in June withdrew from active participation in the activities of the National Plant Food Institute, rejoined the NPFI following a readjustment of the dues structure by the Institute. The moves were made on an individual company basis.

That pesticides are an important part of any successful farm operation, was emphasized at the Ohio Pesticide Institute's meeting in November. Subjects ranged from discussions on residues to the role of gibberellic acid in agriculture.

Speakers at the Eastern Branch of the Entomological Society of America differed in their expressed views of efforts to eradicate the gypsy moth versus merely holding the pest under control. Not only the technical aspects of the problem were discussed, but the public relations side effects as well.

The U.S. Department of Agriculture established special pioneering research groups to explore unknown areas of science. Studies will be made on plant and animal nutrition, insect pathology and physiology, and basic research in other areas.

Pacific Cooperatives announced plans to build a new $50,000 fertilizer plant near Blackfoot, Idaho. Facilities for producing aqua-ammonia will be constructed first and expansion in other directions later.

Nearly 325 delegates turned out for the National Liquid Fertilizer Assn. convention in Cincinnati. Richard Cecil, Bartlett & O'Bryan Fertilizer Co., Owensboro, Ky., was named president. Ideas for expanding sales were discussed and equipment displays were set up during the convention.

The cost of fertilizer to farmers rose only about 1% in the year ended last Sept. 15, according to the U.S. Department of Agriculture. The fertilizer increase was the lowest in the USDA list of farmer production items except for seed and feed.

Insect resistance is real but is not always the cause of poor control measures with insecticides, it was pointed out at the Florida State Horticultural Society meeting.

The fertilizer industry Round Table held in Washington, was the occasion for presentation of numerous papers on manufacturing technology and new methods. Under the direction of Dr. Vincent Sauchelli, National Plant Food Institute, the 6th annual event attracted some 275 persons from the fertilizer industry.

The cotton yield for 1957, tallied at 413 lb. an acre, was 4 lb. an acre under the record of 1955, but still greatly beyond the ten-year average. Bales produced this year were estimated at 11,788,000 as compared to 13,310,000 bales produced in 1956.

Dr. Frank J. Welch was appointed to the board of the Tennessee Valley Authority on an interim basis, to replace the late Raymond R. Paty who died earlier this year. Other members of the board, now at full strength, are Herbert D. Vogel, chairman, and Arnold R. Jones. Mr. Jones is also on the board on an interim basis. The appointments of both himself and Dr. Welch will have to be confirmed by the Senate when it convenes early in 1958.

The California Fertilizer Assn. met at San Francisco in its 34th annual meeting. William G. Hewitt, Berkeley, was elected president to succeed Jack Baker, Los Angeles. Dr. R. L. Luckhardt, Collier Carbon and Chemical Corp., Los Angeles, was named "Industry Man of the Year."

Virginia-Carolina Chemical Corp. named James E. Nall vice president and general manager of its fertilizer division. Mr. Nall was formerly with Standard Fruit and Steamship Co.

The Middle West Soil Improvement Committee voted to join the National Plant Food Institute in the latter's broad program of developing the fertilizer market potential throughout the U.S. In a subsequent move, the NPFI accepted the Middle West group and the effective date for the merge was set for Jan. 1, 1958. Zenas H. Beers, executive secretary of MWSIC will become midwestern regional director of NPFI on that date.

Pesticide manufacturers were given until Dec. 31 to submit their views on a proposed amendment to regulations for labeling various pesticides. Under the provisions of the proposed law, no label would be accepted that directly or indirectly implies recommendations or endorsement of products or their ingredients by any federal agency.

A seven point program designed to boost fertilizer use in the South by some 7.8 million tons over a period of ten years, was presented by Dr. Russell Coleman, executive vice president of the National Plant Food Institute, at the Southeastern Fertilizer Conference held in Atlanta. He said the tonnage target for the program is based on a "realistic potential."

Results of agronomic research work were reviewed by speakers at the second annual Southern Soil Fertility Conference held at Atlanta Nov. 1. The conference was sponsored by the Southern Soil Research Committee of the National Plant Food Institute.

A two-day session which included talks on many angles of safety in the fertilizer manufacturing field was held by the fertilizer section of the National Safety Council at Chicago Oct. 21-22. George F. Dietz, safety director, Fertilizer Manufacturing Cooperative, Inc., Baltimore, was elected chairman of the section.

FARM SERVICE DATA

Extension Station Reports

More rangeland feed from browse plants is the aim of a study at the University of California Hopland Field Station.

Desirable browse plants would supply green feed of high nutritional value during the dry season, says Harold H. Biswell, professor of forestry on the Berkeley campus. He is now testing two types, western mountain mahogany and deer brush, at the range research station in Mendocino County.

Establishing these browse plants on the range is not easy, Prof. Biswell said. Faster-growing annual grasses and weeds compete with browse plant seedlings for moisture, food, and light. The annuals usually win out unless there is considerable seedbed preparation.

One possible solution is to use seedlings grown in flats or from burned-over areas. These could be transplanted to a range area where they are desired.

However, studies have shown that grass competition even to transplanted seedlings is so severe that some row cultivation or chemical treatment of the grass might be necessary, he said.

Insects also seek out the new browse plant seedlings, especially in the summer when the grass and weeds have dried out. Grasshoppers not only strip off all the leaves but even remove the bark. Rodents, such as mice and gophers, find these green plants palatable and girdle the shrubs at the base or cut off the root system.

Once the plants are established, management for their use is important, Prof. Biswell said. They should not be allowed to grow out of grazing reach of the animals or to be grazed so severely that the plants are weakened.

★

Walnut growers who missed the chance to control soft scale insects last summer can still take advantage of dormant-season treatments to keep the pests in check.

This is the advice of A. E. Michelbacher, professor of entomology on the Berkeley campus of the University of California.

"The grower must look hard to see the tiny scales, usually found on the undersides of the twig growth on his dormant trees," Prof. Michelbacher says.

"But if he overlooks or ignores them now, his orchard may be in trouble in the spring. Scale attacks can seriously interfere with the vigor of the trees."

Winter treatments should be made after fall leaf drop but not later than the end of February. In late February or March, after the scales cast their skins, treatment is no longer effective. Scale growth then becomes rapid, and the scales produce quantities of honey dew. It's in this period (but too late) that growers usually become aware of the scales' presence.

For winter treatments to control frosted scale, Prof. Michelbacher recommends application of 25% wettable parathion at 5 lb. per acre. To insure control of European fruit lecanium and calico scale, a suitable oil emulsion (from two to four gallons per acre) should be added to the parathion. These materials can be applied with an air-carrier sprayer in from 100 to 200 gallons of water per acre. But the oil should not be applied if the trees are dry or have suffered from a lack of water at any time during the year.

Scale control is easiest (and most economical) in July and August, the entomologist points out. Parathion applied then at 2 lb. per acre will take care of all three scale species.

But there's one bonus from the winter control treatment: Parathion applied in the winter will destroy the eggs of the walnut aphid and leave the orchard relatively free of this pest until the aphids migrate in from other locations.

★

Carefully balanced soil fertility may help reduce losses from plant pest and diseases, reports Dr. William A. Albrecht, chairman of the University of Missouri's soils department.

"Corn grown on soils with adequate and balanced fertility levels was better able to withstand grain borer attacks in storage than corn grown on poorer soils," said Dr. Albrecht, in citing recent soils research.

Corn fertilized with both phosphorus and nitrogen was much less susceptible to borer damage while in storage than corn getting nitrogen only, he said.

"In tests with fungus diseases of soybeans, research clearly demonstrated that attacks were highest on soils with low calcium levels," Dr. Albrecht reported. "These attacks weren't evident where there were higher levels of exchangeable calcium in the soil.

"More recently, improved research methods indicate that the presence or absence of leaf-eating insects varied with the levels of nitrogen and exchangeable calcium. These two fertility elements are usually associated with the production of protein-producing legume crops."

There is evidence, he says, that nature was able to grow crops without destruction from diseases and pests. But more research is needed to learn about soil management that nourishes plants so well that they can protect themselves from pests and diseases.

"The challenge," says Dr. Albrecht, "lies in the possibilities of formulating a balanced fertility as a guarantee of less plant diseases and fewer pests, as well as providing the means of producing more vegetative bulk per acre."

★

Farmers who cut their costs of production with higher yields per acre received more dollars for every hour of labor in 1956 than at any time since 1952, reports John Doneth, Michigan State University farm economist.

Mr. Doneth bases his statement on a study of records kept by 500 dairy, livestock and general farmers throughout the state. His statement was summarized by the Middle West Soil Improvement Committee.

As net income of the farmers in the study went up, expenses rose, too, but expenses went up only about two-thirds as much as income, he reports.

The job of reducing unit costs of production involves efficient farm management practices, the Middle West Soil Improvement Committee points out. This means using fertilizer to get maximum per acre returns from crops; it means combating diseases, insects and weeds, planting a corn stalk population sufficient to make use of available nutrients and moisture.

Other efficient management practices include proper fertilizer placement, using improved crop varieties, maintaining the soil's organic

"Please cast aside those foolish fears about a machine taking your place."

matter supply, using correct tillage methods and following sound grazing and feeding methods.

"On the basis of Mr. Doneth's studies," says the committee, "he indicates that farms are becoming more specialized, larger and more commercialized. Farmers are either faced with changing, investing, expanding, and improving or else selling or renting the land out, he believes."

★

Radioactive superphosphate is being put to good use in tests with tomatoes at Virginia Polytechnic Institute agricultural experiment station.

Scientists there say the radioactive material is being used to determine the most efficient method and rate of applying superphosphate, as shown by the yield, quality, and uptake of the fertilizer by the tomatoes.

The radioactive superphosphate treatments indicate that deep furrow placement results in a higher percentage of plant phosphorus being derived from the fertilizer than shallow band placement. A high rate of superphosphate significantly increased the yield of U.S. No. 2 tomatoes over that of a low rate.

These studies are being continued in order to get more fundamental information on applying fertilizer for tomatoes.

★

Long-lasting insecticides are now available which afford good control of European chafer grubs in lawn and turf areas, according to Dr. Foster L. Gambrell, entomologist at Cornell's New York State Experiment Station at Geneva.

"Late fall is a good time to treat lawns and turf areas for chafer grubs," he says. "Materials are now available which afford good protection against this pest for three to five years when mixed with the top three inches of the soil. They are also effective against grubs of the Japanese beetle." DDT, chlordane, and dieldrin are all effective, he said.

★

There's some real advantage in fertilizing pastures for beef cattle.

But the advantage isn't always as apparent as you might think, according to Paul M. Burson, soils scientist, and A. L. Harvey, livestock scientist at the University of Minnesota.

In tests at the Beef-Grassland farm at the university's Rosemount agricultural experiment station, there hasn't always been an important obvious gain advantage for cattle on fertilized pastures compared to unfertilized areas.

The Beef-Grassland project was started in 1952. Since then, fertilizing has increased gains in some tests but not in others. A couple of years ago, Dr. Burson and Dr. Harvey found there was $30 more beef produced per acre where fertilizer was used, while last year there was little difference, on the average.

But fertilizing has other benefits. For one thing, heavy fertility tends to pep up the grasses in the pasture mixture—an important factor where bloat is concerned. Livestock men are generally agreed that it's wise to keep a pasture mixture down to no more than half legumes, to help control bloat. Fertilizer seems to help in this respect.

Second, the cattle tend to eat more on the grasses, when fertilized, than on legumes, which is also helpful from a bloat standpoint.

And third, the scientists have noted that fertilized pastures are grazed more evenly by beef cattle. For some reason, the cattle will eat grass on dropping areas better on fertilized pastures than where no fertilizer was applied. Finally, it's possible to have more animals on each acre when the pasture is fertilized.

FIVE-IN-ONE MAN

(Continued from page 12)

it is something without which we won't get far in the feed selling business. Education, personality, the gift of gab—they're not enough without tenacity of purpose.

Calvin Coolidge once said, "Nothing in the world can take the place of persistence. Talent will not: Nothing is more common than unsuccessful men with talent. Genius will not: Unrewarded genius is almost a proverb. Education will not: The world is full of educated derelicts. Persistence and determination alone are omnipotent."

And, what of the boss' role in developing salesmen? A good salesman is a well-informed salesman, and it is the employer's duty to understand that he'll only get out of a man what he puts in. This selling business is changing with amazing rapidity and the first duty of management—and I don't care whether we're talking about a farm store with one clerk or a company with 1,000 salesmen—is to help the salesman improve himself. My observation is that 75% of the turnover in sales personnel is avoidable. But, through some mysterious reasoning some employers turn their men loose to shift for themselves as best they can, without supervision, inspiration, education or fair compensation. The very life-blood of any business enterprise is its sales force, and its building and maintenance should rate priority over nearly everything else. The whip and spur won't build sales, and hiring and firing won't do it; but a program of careful selection, continuing education and fair compensation will do it.

FIVE-IN-ONE-MAN NEEDS RECOGNITION: Let's start paying more attention to the "five-in-one-man." Let's recognize him for what he is, or can be—a willing, hard-working one-man gang, upon whom the livelihood of everyone else in the organization depends. Let's not forget that he's out there alone, facing up to problem after problem and disappointment after disappointment, soaked with sweat in the South and bucking snowdrifts in the North, trying to make a buck. Let's remember that no firm is better than its sales force, that the salesman is the foot soldier who has to send in the order before anything else happens. To turn him loose without adequate training, without help, without encouragement or inspiration, without strong advertising, without a sensible and fair share of the profits in return for his labors, is to invite continued difficulty in meeting sales quotas. Let's not for a moment forget that no business can grow, or even survive, without giving every possible bit of attention to the care and feeding of the absolutely indispensable "five-in-one-man."

QUOTE

"The long range outlook for farming is good—good for farm families who keep up with the changes in a dynamic agriculture and good for the consumers of agricultural products."
—Don Paarlberg, assistant secretary, U.S. Department of Agriculture.

Books on Pesticides

WEEDS—Second Edition (1955)
W. C. Muenscher

Entire book has been revised and reset, with descriptions of seventy weeds added to the original list of five hundred, plus twelve new full-page plates depicting nineteen kinds. Keys and full descriptions provided for identification with detailed illustrations of 331. Types and sources of weeds, their means of reproduction and dissemination, and the amount of damage they inflict on crops. Specific directions for control, with reference to chemical methods of recent discovery $10.00

CHEMICAL BUSINESS HANDBOOK
Dr. John H. Perry

1,300 double column pages, the equivalent of several average books; 700 illustrations, by 124 contributors. Market research data section is 280 pages, business mathematics 200 pages, financial and accounting 142 pages, research and development 150 pages, sales and advertising 92 pages, twenty sections in all. The book deals with chemical management problems and is useful to technical men, engineers and executives, in the chemical and allied fields. Dr. Perry is editor of the Chemical Engineers Handbook, a companion publication $17.00

INSECT PESTS OF FARM, GARDEN and ORCHARD Fifth Edition (1956)
Leonard M. Peairs and Ralph H. Davidson

A standard text for 44 years. Includes insects affecting grasses, grains, cotton, legumes, vegetables, flowers, fruits, stored products, household goods and domestic animals. Contains a new chapter on insecticide formulations, spray mixtures, application equipment, etc. Material on forty new pest species added, including drastic changes in the illustration. 661 pages $8.50

DDT and NEWER PERSISTENT INSECTICIDES
T. F. West and G. A. Campbell

The first and major part of book is devoted to the physical and chemical properties, manufacture, formulation and applications of DDT. The second part deals with other chlorinated hydrocarbons whose insecticidal properties have been discovered recently and compares these new insecticides with DDT. The preparation of aqueous suspensions, solutions, emulsions, and dusts containing DDT, the compatability of DDT with other insecticides, fungicides and additions are covered in detail. Contains dozens of tables on the solubility of DDT in various solvents, the catalytic activity of accessory substances in the presence of DDT, analogues of DDT, the comparative toxicity, hydrolysis and solubility of DDT analogues, the toxicity of DDT for almost all important insects, etc. Many illustrations $8.50

APPLIED ENTOMOLOGY—Fifth Edition
H. T. Fernald and Harold H. Shepard

This text since 1921 has had an outstanding record of usefulness. The Fifth Edition preserves the general organization and coverage, with changes to improve the presentation and to incorporate new knowledge. Contains chapters on anatomy, physiology and development. The economic importance and control of insects are discussed in a general way with much attention to insecticides. The classification of insects is emphasized, with examples drawn from species conspicuous for being very harmful or decidedly beneficial. Specific control measure included for injurious forms. Last chapter considers other pest animals closely related to insects. 385 pages $7.00

DISEASES OF FIELD CROPS—Second Edition (1956)
James G. Dickson, Professor Plant Pathology, University of Wisconsin

Covers the diseases of cereals, grasses, legumes and fiber plants, which are the major food, feed and fiber sources throughout the world. More than 60 diseases incited by viruses, 40 by bacteria and 300 by fungi are listed and discussed in relation to field crop plants. Identification and information basic to its control, with emphasis on the problems of crop rotation, adaptation and the use of disease resistant varieties. This revised edition includes several new diseases, new illustrations and much recent research in the field $8.50

THE GARDENER'S BUG BOOK (1956)
Dr. Cynthia Westcott

The Complete Handbook of Garden Pests and their control. Information, scientifically accurate but easy to read on 1,100 insects, mites and other animal pests that attack trees, shrubs, vines, lawns, flowers, fruits and vegetables in home gardens. Illustrations in full color. Control measures combine the latest in chemical developments with time-honored cultural measures. Helpful to all who serve the general public and to truck farmers and fruit gardeners. 579 pages, cloth bound $7.50

THE CHEMISTRY AND ACTION OF INSECTICIDES
Harold H. Shepard, Entomologist, U.S. Department of Agriculture, formerly Associate Professor of Insect Toxicology, Cornell University.

Treats the chemistry of insecticides, the history of their use, their commercial importance here and abroad, the nature of the major uses, the influence of environment on effectiveness. Materials are arranged according to their chemical relationships. Two chapters relating to organic compounds largely new as insecticides. Illustrative data in form of tables, and a convenient appendix of equivalents arranged for practical use in the field. 504 pages..... $8.00

WEED CONTROL
W. W. Robbins, A. S. Crafts, and R. N. Raynor

A textbook-manual presenting a modern view of the rapidly developing field of chemical weed control. Reports in detail the research on which most modern herbicide usage is based. Weeds, their reproduction, prevention, biological control, chemicals in weed control. Herbicides, foliage contact applications, hormone-like substances, root applications, evaluations of combinations of chemical applications. Weeds of grasslands and turf. Special weed problems, cropped and uncropped areas. Published 1952. 503 pages, 155 illustrations $8.00

INSECT, FUNGUS AND WEED CONTROL
Dr. E. R. de Ong

The information is grouped according to field of application rather than to chemical composition or nomenclature. Chapters on insecticide label, seed disinfectants, herbicides, forest insects and diseases, livestock insects, and the pests found in household and industry. Fumigation of warehouses, residual sprays and preservatives for fruits, vegetables and wood products are covered. An up-to-date guide on pest control with the needs of operators, agricultural and structural specialists carefully considered. Shippers and warehouse personnel will find the book useful..... $10.00

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BUG OF THE WEEK

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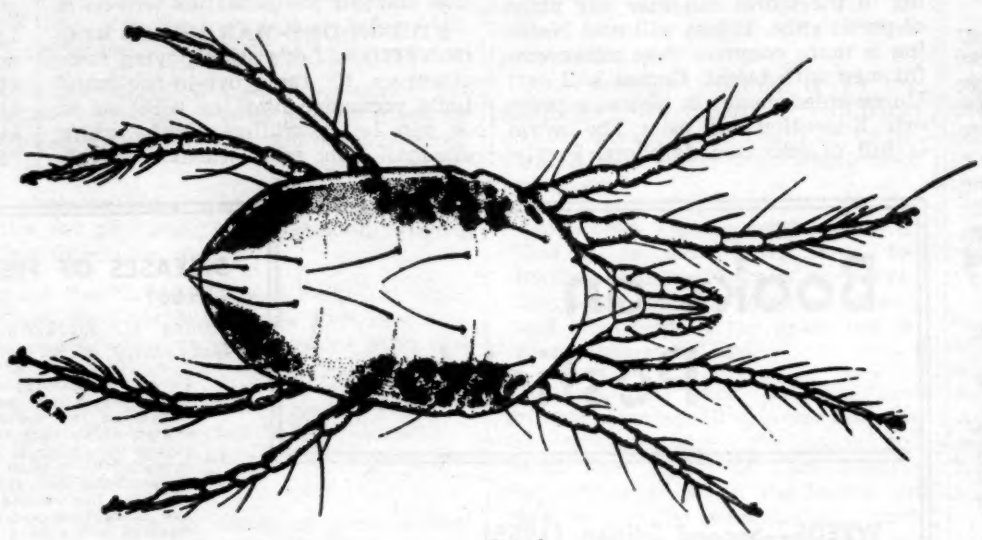
SPIDER MITE



HOW TO IDENTIFY

The adult female spider mite is an eight-legged, pale-yellow or greenish mite, measuring only about 1/60th inch in length. The male is even smaller, being only about 1/80th of an inch long. Two dark spots, composed of the food contents, show through the transparent body wall. The body is oval in outline and sparsely covered with spines.

HABITS OF SPIDER MITE

After mating, female mites begin laying eggs at the rate of from 2 to 6 a day, each depositing a total of 70 or more eggs during her lifetime. Spider eggs are spherical, shiny and extremely minute, attached to the underside of the leaves, usually to the web which the mite spins wherever it goes over the plant. The eggs hatch in from 4 to 5 days into small, crawling young with only three pairs of legs. Female mites molt three times in the course of their growth, the males twice. A complete generation is produced every 20 to 40 days, but these overlap so that all stages of the mites may usually be found at any given time.

DAMAGE DONE BY SPIDER MITE

The mite pierces the leaf of the plant with two sharp slender lances attached to its mouth, and sucks the sap. Not only does the loss of sap damage the plant, but some entomologists believe that the plant is poisoned by the feeding insect. Many vegetable crops are damaged, but most serious injury is sustained by beans, corn, tomato, eggplant, celery and onion crops. Distribution of this pest is world-wide.

CONTROL OF SPIDER MITE

Application of control materials, whether by spraying or dusting, must be thorough in order to cover the underside of leaves. Recommendations for control materials, timing, application practices, dosages, etc., may vary widely in different states and sections of the country. It is therefore difficult here to attempt to give specific suggestions as to what materials should be used or how they should be applied. Local authorities such as county agents, state experiment station entomologists, and manufacturers of the various pesticides should be consulted for specific information. Labels on pesticide containers carry full instructions on use and dosages. Users should always be urged to study labels carefully before applying any insecticide on food or feed crops to avoid the risk of illegal residues at harvest time.

Drawing of Spider Mite courtesy of U.S. Department of Agriculture.

Erwin H. Klaus

TO MARKETING POST—Erwin H. Klaus, for many years active in Bay Area marketing circles, has resigned as San Francisco manager of the Eschen Company to become sales manager of Ravel Brothers, Inc., feed and seed, farm chemical and garden supplies distributors, Albuquerque, New Mexico.

Mr. Klaus served for many years as marketing director of Northrup, King & Co., seed processors and wholesalers, Berkeley, Cal., where he created the seed industry's first integrated marketing program. He is a member of the American Marketing Association and a former chairman of its agricultural marketing committee.

Roberts Offers Amobam For Insecticidal Uses

NITRO, W. VA.—Roberts Chemicals, Inc., Nitro, W. Va., is now offering diammonium ethylene bisdithiocarbamate under the brand name "Amobam" for control of rust mite on citrus and for aid in the control of melon worm and pickle worm on squash and pumpkins. Amobam is used by mixing with zinc sulfate to form Zineb in the spray tank.

The firm said that the above insecticidal uses are in addition to the use as a soil fungicide for which Amobam has been offered. These uses include the control of seedling disease complex on cotton and damping off on vegetables.

These uses do not infringe the Hester re-issue patent which is restricted to the use of alkylene bisdithiocarbamate salts for control of fungus by applying to living plants only, the firm said. Technical Information giving other industrial and agricultural uses, as well as samples, are available from the company.

Crown Zellerbach Opens New Plant

SAN FRANCISCO—Crown Zellerbach Corp. has started production in its new $4 million multiwall bag plant at Bogalusa, La., next to the paper mill operated by Gaylord Container Corp., a division of Crown Zellerbach. Announcement of completion of the plant was made by J. W. Kincaid, manager of the multiwall bag sales division.

The new plant covers 216,000 sq. ft., and is equipped with completely new and modern machinery capable of producing 50 million bags a year. W. H. Maxwell, formerly superintendent of the firm's multiwall plant at Antioch, Cal., and Camas, Wash., has been appointed superintendent of the Bogalusa plant.

SPRAYERS SHORT COURSE

ST. PAUL—The 1958 Minnesota Aircraft Sprayers Short Course will be held at the St. Paul Campus of the University of Minnesota Jan. 22.

California Fertilizer Conference Scheduled

SAN MARINO, CAL.—The sixth annual California Fertilizer Conference will be held on April 13, 14 and 15, 1958, on the campus of California State Polytechnic College, San Luis Obispo, it has been announced by the California Fertilizer Assn. Some 300 persons are expected to attend, according to J. H. Nelson and Earl R. Mog, both of Stockton, co-chairmen of the conference.

Sponsored by the soil improvement committee of the CFA, this annual conference will provide a forum for dissemination of the latest information concerning fertilizer research, the association says. Among those who will attend are growers of all principal commodities; commercial laboratory personnel; cannery and other agricultural processing field men and technicians; research and extension personnel of the University of California, California State Polytechnic College and the State Colleges; the USDA Soil Conservation Service, and key representatives of the fertilizer industry.

The program will be general in its scope of coverage, but will lean somewhat toward range fertilization, because of the work in that field going forward at Cal-Poly, according to the committee.

On Sunday evening, April 13, the soil improvement committee will sponsor its annual joint dinner with the University of California fertilizer committee. Dr. Louis Proebsting of the department of pomology, Davis, is chairman of the university committee, and M. E. McCollam, western manager, American Potash Institute, Inc., San Jose, is soil improvement committee chairman. Current problems and newly developed research techniques are discussed at these annual affairs to mutual advantage.

The entire group will meet at 9 a.m. on Monday, April 14, in the engineering auditorium for a morning program of formal papers on fertilizer use, given by authorities in their fields.

Buses will transport all delegates on a tour of field-size range fertilization test plots in the area during Monday afternoon, with a luncheon stop at the first ranch for charcoal broiled steaks, barbecued beans, coffee, etc., the CFA has announced.

The annual conference banquet, featuring an outstanding speaker, will be held that evening in the Edna Farm Center Hall, on the southern outskirts of San Luis Obispo.

Two panels will be featured on Tuesday morning, April 15, one on "Range Fertilization," and the other on "Crop Response to Sulfur in California." The audience will be divided, half meeting in Engineering Auditorium, and the balance in Classroom 6, immediately across the street. The panels will rotate.

All growers and others interested in soil fertility and plant nutrition are invited.

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WICHITA, KAN.—*501 KFH Building*

Demand High, but Nitrogen Supplies Seen as Adequate For Agriculture in 1958

By H. H. TUCKER*
Sohio Chemical Co.,
Lima, Ohio

Supplies of nitrogen materials are certainly a most important subject, and it is well to stop occasionally and review the situation on supplies of raw materials in order to plan our future programs with some degree of accuracy.

Capacity for nitrogen production is often quoted and compared with use to show a wide divergence between these two figures. These figures are often misevaluated, which brings about wrong conclusions. It is hoped that we here can point out a few facts and put them in their proper perspective.

Capacity for production of synthetic nitrogen materials is usually quoted in terms of anhydrous ammonia. Since anhydrous is the first step in the production of all synthetic nitrogen materials, other nitrogen materials are made from this one base ingredient. Anhydrous ammonia is oxidized to make nitric acid which in turn may be combined with ammonia to make ammonium nitrate in solution or solid.

Nitric acid is also combined with other materials such as sodium or potassium to form sodium nitrate or potassium nitrate. Anhydrous ammonia likewise is combined with other acids such as sulphuric or phosphoric to make ammonium sulphate or ammonium phosphate. Anhydrous is combined with carbon dioxide to form urea. This urea is marketed in the form of solutions or as dry materials for many uses.

Anhydrous ammonia being the first material produced, is the lowest production cost material per unit of nitrogen. Investments in further processes and manufacturing costs add to the FOB costs of all other materials. Ammonium nitrate in solutions or solid cannot be expected to sell at the price of anhydrous ammonia. The necessary investments and manufacturing cost for producing urea are even greater than for ammonium nitrate. It is therefore logical to expect the price of urea to be higher than ammonium nitrate per unit of nitrogen.

Of particular interest here is the overall nitrogen production picture and the production of urea.

Interest in synthetic nitrogen production was stimulated by the First World War. At the start of the Second World War there were only 6 or 8 synthetic nitrogen producers. Allied's nitrogen plant at Hopewell, Va.; Dupont's plant at Bell, W.Va.; and TVA's plant at Muscle Shoals were by far the largest producers at that time.

During World War II, however, the government undertook a program of building some ten nitrogen plants. By the war's end a little over half of these were in production. The remainder were in the construction or blueprint stage. All of these were completed eventually. Some were used for awhile to produce other materials but all are now producing synthetic nitrogen. These government-built plants were all sold or leased and are now operated by firms in the industry.

The increase in supplies of nitrogen resulting from this increased capacity found use in agriculture and industry and stimulated a further rapid expansion program in synthetic nitrogen production. Now there are 44 companies with 54 nitrogen plants within continental United States. The most rapid expansion in nitrogen production occurred from 1950 to 1955. Only 5 plants have started construction in the past two years. Three additional small plants, two in California and one in Arizona, have since been announced.

Capacity for producing synthetic nitrogen increased from about 400,000 tons of nitrogen in 1940 to 1,400,000 tons in 1950. The next four years doubled this capacity to about 2,900,000. From 1954 to 1957 capacity increased another million tons. The indicated increase for the next 2 or 3 years, however, is relatively small.

Synthetic nitrogen production is used for both agriculture and industry. Current figures show that total U.S. demand for nitrogen for all uses, including exports, in 1952-53 was about 2.4 million tons. Total available nitrogen at that time, including imports, was about 2.6 million tons. It will be noted that even in the periods of shortage so-called available supplies are about 8 to 10% above the amount used during that period. This is about normal for disappearance from production to actual reported use.

For the year 1956-57 demand stepped up to about 3.2 million tons, an increase of 33% in a 4 year period. The supply of available nitrogen also increased by an even larger amount which indicates a current surplus should all plants be used to capacity. Indications are that this surplus capacity will be taken up by about 1959 or 1960. It is well to remember that these indicated surpluses were based on annual production and do not necessarily mean surpluses during all periods of the year. In fact the sale of nitrogen during the first half of the calendar year far exceeds capacity to produce during this period.

Of particular interest to this group is the production capacity for urea. Urea has proved to be of great value in nitrogen solutions for direct application and in producing complete liquid fertilizers with highest concentrations and lowest salting out temperatures. Currently 8 companies are producing urea at 9 different plants in the United States. These are located at South Point, Ohio; La Platte, Neb.; Pryor, Okla.; Belle, W.Va.; Memphis, Tenn.; Ventura, Cal.; Savannah, Ga.; Vicksburg, Miss.; and Lima, Ohio.

Urea's end use pattern is primarily in fertilizers; however, animal feeds, synthetic resins, and other industrial applications utilize a sizable segment of our urea production.

In 1956, 55% of the total urea consumed was for fertilizers with 45% in animal feeds and in the industrial field. Of the 55% consumed in the fertilizer market about 10-15% was used in the manufacture of direct application solutions and complete liquid fertilizers, or about 6% of the total urea consumed was used in these areas. Solutions and liquid fertilizers represent a relatively major growth area for urea usage.

There was almost a two-fold expansion in U.S. production between 1954 and 1956. Demands for urea lead us to believe that at times in 1958 urea will be in short supply similar to 1957. With start-ups of new urea plants late in 1958 the supply situation may ease somewhat in 1959 and 1960.

By 1959 the total urea production capacity in the United States is expected to total some 720 thousand tons annually. There are indications that additional urea plants may also come on stream in late 1959 or 1960.

In summary, urea markets are expanding rapidly and so are production facilities to supply these needs. Fertilizer markets are the major expansion force. The near term supply situation could remain very tight.

Experience of the past few years has shown a very rapid drop in inventories of nitrogen materials during the spring season with 1957 drop being much greater than any of the three preceding years. Inventories of anhydrous ammonia, for example, dropped from a somewhat normal early spring peak of about 170 thousand tons down to almost 60 thousand tons. This 60 thousand tons is only one-half that of the lowest inventory during the entire year of 1956. Other materials such as urea, ammonium nitrate, ammonium sulphate, and nitrogen solutions all experienced the same tight situation this past spring.

The extreme peak period of fertilizer usage is now a reality and to be expected when farmers no longer are fearful of a short supply. This accentuates the storage problem for raw materials, base goods, or end product if the farmer's demands are to be met. Even though there may be surplus capacity to produce raw materials, capacity to store liquid fertilizers for these peak periods is very inadequate. A word of warning then seems to be in order. It is suggested that each fertilizer manufacturer and distributor accept his share of the responsibility for storing the fertilizer he will need. This need for storage of raw materials applies to other nutrients as well as nitrogen.

Since storage is needed it certainly is important to hold the cost of this storage to a minimum. This might be done by storage of end product in mild steel tanks either at manufacturing points, dealers' locations, or on the farm. Storage might also be for base materials such as 11-22-0 or 16-8-0 which can be quickly blended into desired grades. The advantage of either of these methods would be that low cost non-pressure mild steel tanks could be used.

Still another approach might be to store the raw materials in order to have adequate supplies when needed. With nitrogen materials these might be stored as ammoniating solutions, solutions of salts, or dry urea. Some nitrogen solutions would, of course, require high pressure tanks or dilution to reduce vapor pressures to store in non-pressure tanks. Solutions which salt out around 32° F. might well be stored in tanks imbedded in the ground to prevent excessive chilling of the solution.

When one considers the need for extra storage tank capacity for both phosphoric acid and nitrogen it would seem that neutral base goods containing both nitrogen and phosphorus might permit greatest tank storage at minimum cost.

* Paper presented at Fertilizer Solutions Assn. meeting, Cincinnati, Ohio, November, 1957.

ACHIEVEMENT AWARD—Representatives of Texas A&M Student Agronomy Club receive the National Achievement Award presented by the Best Student agronomy club in the U.S., by the American Society of Agronomy. William Wayne Allen, president of the Texas A&M club (center), holds the trophy, flanked by Dr. A. G. Norman, president of the American Society of Agronomy at left, and Dr. Willard H. Garman, chief agronomist, the National Plant Food Institute, Washington, D.C., right. The award was made in connection with the ASA meeting at Atlanta, Ga., recently.

California Sets Broomrape Quarantine

SACRAMENTO — The California Department of Agriculture has issued a plant quarantine, effective Dec. 26, restricting movement of tomato plants from areas in Riverside and Imperial counties which are infested with Cooper's broomrape, a parasitic plant which feeds on roots of tomato plants.

The quarantine is designed to prevent the spread of Cooper's broomrape to the major tomato growing areas of California.

The quarantine requires tomato plant nurserymen in the Mecca area of Coachella Valley, Riverside County, and in the Niland area, Imperial County, to fumigate fields in which tomato plants are to be grown for statewide distribution. Methods of treatment to be performed will be under direction of county agricultural commissioners in the quarantined areas.

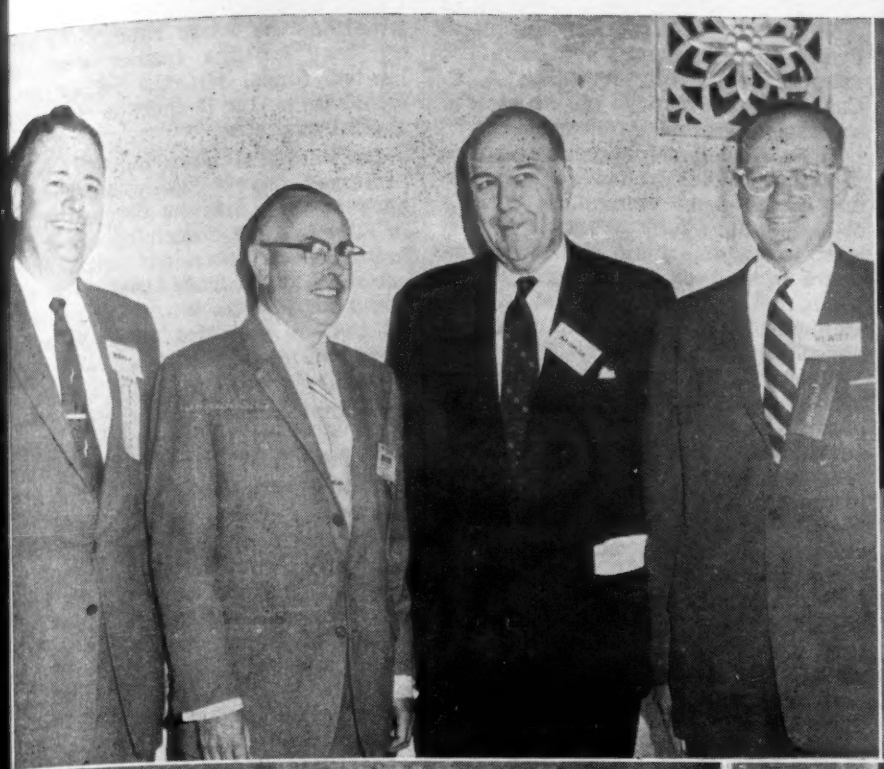
Shipments of tomato plants from treated fields may be certified by the commissioner as having been grown in treated soil and may be shipped without further restriction throughout the state.

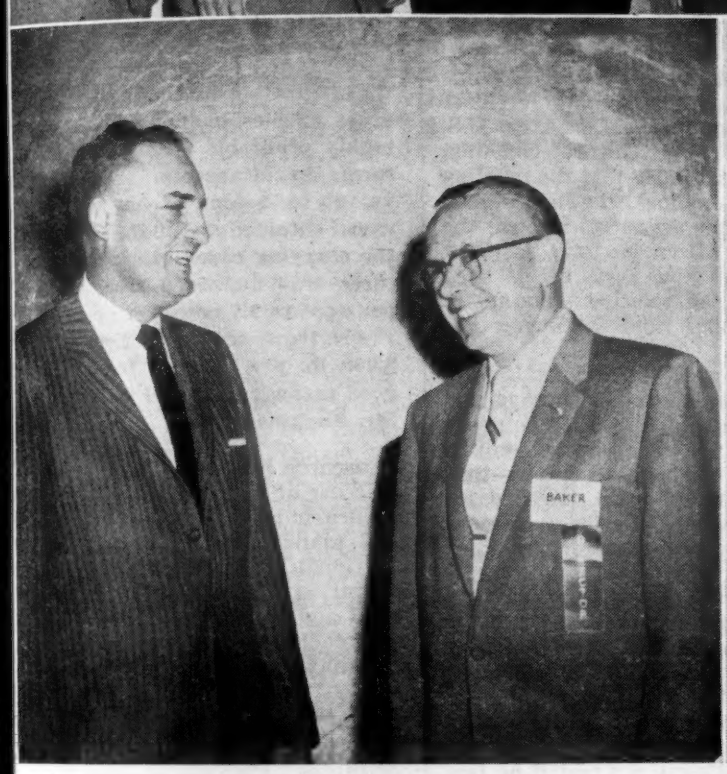
Cooper's broomrape, which has not been found outside the Riverside and Imperial desert areas, apparently attacks only tomatoes among domestic plants. In other known hosts are non-economic desert plants.

Armyworms Under Control in Texas

COLLEGE STATION, TEXAS—Good control of fall armyworms on alfalfa was obtained by using endrin and a mixture of toxaphene-DDT at the Texas Agricultural Experiment Station.

The spotted alfalfa aphid was controlled for two months with two applications of parathion, malathion, demetion and trithion. Also the garden webworm was almost eradicated by a toxaphene-DDT mixture.



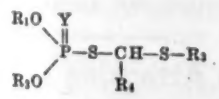


CALIFORNIA FERTILIZER ASSN. MEETING—Scenes at the meeting of the California Fertilizer Assn., San Francisco, are shown here. Top row, left to right: Sidney H. Bierly, general manager of the CFA, San Marino; Jack Baker, Bandini Fertilizer Co., Los Angeles, 1957 CFA president; True D. Morse, under-secretary of agriculture, Washington, D.C.; and William G. Hewitt, CFA president for 1958. Second photo: R. M. McGough, Collier Carbon & Chemical Corp., Los Angeles, congratulates Dr. R. L. Luckhardt, also of C.C.C. Corp., upon the latter's selection as the CFA's "Man-of-the-Year." Lower row: Dr. Russell Coleman, executive vice president, National Plant Food Institute, Washington, D.C. and Mr. Baker. Lower right: Panel on "Our Partnership with Agriculture." From left at table, J. Earl Coke, vice president, Bank of America, San Francisco; Dr. George B. Alcorn, agricultural extension service, University of California, Berkeley; Dr. D. G. Aldrich, Jr., University of California, Davis, panel moderator; John B. Martin, Jr., Martin Produce, Inc., Salinas, Cal.; and Lowell W. Berry, president, Best Fertilizers, Oakland, Cal. A story appeared on page 1 of the Nov. 18 issue of Croplife.

Industry Patents and Trademarks

2,815,312

Pesticidal Thiophosphoric Acid Esters and Methods of Destroying Insects. Patent issued Dec. 3, 1957, to Max Schuler, Arlesheim, Switzerland, assignor to Saul & Co., Newark, N.J., as nominee of Fidelity Union Trust Co., executive trustee under Sandoz Trust. A pest control composition comprising a thiophosphoric acid ester which corresponds to the formula



wherein each of R_1 and R_2 represents a low molecular aliphatic hydrocarbon group, R_3 represents a member selected from the groups consisting of lower alkyl and lower aralkyl, R_4 represents a member selected from the group consisting of —COO.lower alkyl, —CON(lower alkyl)$_2$ and C≡N, and Y stands for a member selected from the group consisting of O and S, and a pesticide adjuvant as carrier therefor.

2,815,376

Production of Urea in Granular Form. Patent issued Dec. 3, 1957, to Robert Ellis Knowlton, Ian Archibald Macgregor, and Peter Evans, Norton-on-Tees, England, assignors to Imperial Chemical Industries, Ltd., London. A process for the production of substantially pure urea in free-flowing granular form which comprises discharging onto the surface of an agitated mass of substantially dry particulate urea having a temperature within the range of 10° C. to 90° C., droplets of a solution of urea having a concentration of at least 60% by weight, the proportions of urea as solution to urea in substantially dry particle form being in the range of 0.25:1 to 3:1, continuing the agitation of said mass until granules are obtained and then drying said granules in stages by reducing the moisture content thereof to at most 3% using a temperature within the range of 50° C. to 60° C., and thereafter reducing the moisture content to at most 1% using a temperature within the range of 60 to 120° C.

2,814,556

Fertilizer Comprising Urea and Ammonium Hydrogen Phosphates. Patent issued Nov. 26, 1957, to Ivan Christoffel, Hopewell, Va., assignor to Allied Chemical and Dye Corp., New York. A fertilizer comprising from 19% to 81% of an ammonium phosphate composition equivalent to

$$(NH_4)_{(1.4\text{-}1.8)}H_{(1.6\text{-}1.2)}PO_4$$

said fertilizer being soluble in water to produce a solution containing at least 45 parts of said urea and said ammonium phosphate composition per 55 parts of water, which solution will not salt out at 0° C.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Provalent, for ingredients of insecticides, herbicides, fungicides, plasticizer and solvents, carriers and diluents. Filed April 20, 1956, by Socony Mobil Oil Co., Inc., New York. First use Dec. 28, 1955.

Dowzene, for piperazine and salts thereof for use principally as a parasiticide and as an active ingredient of parasiticidal compositions. Filed Nov. 28, 1956, by the Dow Chemical Co., Midland, Mich. First use June 12, 1956.

Kill-Ko, in hand-drawn outline letters, for preparation for destroying rodents. Filed Jan. 18, 1956, by Rigo Manufacturing Co., Nashville, Tenn. First use Aug. 7, 1956.

Farmingdale, for lawn weed killer, insecticides, herbicides, and fungicides. Filed Feb. 5, 1957, by Farmingdale Garden Laboratories, Inc., Massapequa, N.Y. First use March 15, 1955.

Lam-Kill, in heavy capital letters, for rodenticides. Filed March 28, 1957, by Mattie Y. Lamb, doing business as Lamb Products Co., Nashville, Tenn. First use July 15, 1950.

Balcom's Weed Butcher, in hand-lettered design, for weed killer. Filed May 17, 1957, by Balcom Industries, Inc., Greeley, Colo. First use Jan. 10, 1950.

Mica-Grow, in hand-drawn capital letters, for soil conditioner. Filed March 25, 1957, by the Federal Foundry Supply Co., doing business as the Wyodak Chemical Division, Cleveland, Ohio. First use Feb. 18, 1957.

Ozark, hand-drawn capital letters, with "Ozark Mahoning" in oval at lower part of design, for soluble fertilizers. Filed April 23, 1957, by Ozark-Mahoning Co., Tulsa, Okla. First use Jan. 22, 1957.

Bactivity, for soil conditioner. Filed June 11, 1957, by Michigan Peat, Inc., New York. First use May 28, 1957.

Soilkix, for fertilizers. Filed June 13, 1957, by Utah Poultry & Farmers Cooperative, Salt Lake City, Utah. First use April 23, 1957.

MINNESOTA MEETING

(Continued from page 1)

farmers and are influential with all classes of farmers.

★ Dealers have the best chance of any group to talk to farmers about fertilizer.

★ Mass media can do one of the biggest jobs in urging farmers to take advantage of the information and technical assistance available.

Mr. Allstetter also listed some actions suggested by the survey:

Push soil tests by everyone concerned with soil fertility; sell on the basis of unbiased scientific findings by dealers and salesmen; provide dealers and salesmen with acceptable, clear and concise informational material by colleges of agriculture; sell the importance of soil fertility and urge farmers to consult informed sources by mass media; step up demonstration activity on local basis by college and industry; cooperate closely with credit agencies by college, industry and dealers; collect and evaluate information on weather risks by colleges of agriculture.

The final report of the survey, broken down by geographical regions and accompanied with analysis and recommendations, will be ready in several weeks, Mr. Allstetter said. It will then be presented to an industry study committee and thereafter will be distributed in accordance with the committee's instructions.

A penetrating and complete analysis of the survey as it pertains to the Midwest states will be presented by Dr. M. S. Williams and Zenas Beers Feb. 13-14 at the Agronomists-Industry Joint Meeting in Chicago. Dr. Williams is chief agricultural economist for the Institute. Mr. Beers, who currently is executive secretary of the Middle West Soil Improvement Committee, on Jan. 1 will become midwestern regional director for the Institute.

Mr. Beers told the Minnesota group that, except for doing more and doing it better, about the only visual changes in his operation after Jan. 1 would be the name on the door. He also said that the Minnesota committee of the Middle West Soil Improvement Committee would continue to function.

Mr. Beers told of a current project underway at Midwest colleges of obtaining production potentials for the various states. Once these potentials are obtained, he said, it would be a good idea to get several hundred farmers in each state to set aside some land and use all of the good practices known. This, he said, would provide a test for the productive capacities of the farms.

He also suggested state contests based on efficiency in farming.

Both Mr. Allstetter and Mr. Beers spoke at the evening session of the meeting. They were joined by J. C. Engibous, International Minerals & Chemical Corp., and R. E. Bergman, Minnesota director of feed and fertilizer control.

Mr. Engibous, IMC supervisor of biological research at Skokie, Ill., outlined some of the research responsibilities of industry. He said that colleges need to do more basic research and industry more applied research.

Mr. Bergman said that he believed three purposes of the Minnesota fertilizer laws were (1) to prevent fraud and deception in the sale of fertilizer, (2) to assure that the purchaser gets his money's worth and (3) to insure a fair competition between fertilizer manufacturers.

Mr. Bergman listed the following as problem areas for his department:

Possible effects of the proposal to change from oxide to elemental guarantees.

Blendors who make guarantees. Mr. Bergman said that by blendors he meant those engaged in that type of operation wherein materials are blended and sold not as guaranteed ratios, but that some blendors were guaranteeing the products. He said that after tracking down a 10-75-30 guarantee, it turned out that is was supposed to mean 10 lb. N, 75 lb. P_2O_5 and 30 lb. K_2O per acre.

Labels on specialty fertilizers, which must contain the statement: "Specialty Fertilizer For Non-Commercial Use."

Soil conditioners being represented as fertilizers.

About 500 persons gathered for the morning and afternoon sessions, which were filled with reports from University of Minnesota staffers.

Sherwood Berg, head of the department of agricultural economics, and Skuli Rutford, director of the agricultural extension service, presided at the two sessions.

In setting a theme for the discussions, Dr. William P. Martin, head of the department of soils, talked about the many soil types in Minnesota.

The problem of good soil management is complicated by these different soil types, coupled with all of the varying factors needed for a sound program, Dr. Martin said.

"Because of the complexity of the problem and the need for judgment in relating the several parts to a given farm area, it behooves the county agricultural agent, the federal farm advisers, fertilizer dealers and others to be well informed and to understand the principles involved in good soil management," he said. "The farmer today not only needs but also is increasingly insistent upon such services."

Dr. Jack DeMent, soils and fertilizer research branch, Tennessee Valley Authority, Sheffield, Ala., talked about the impact of new fertilizer materials.

The new developments, he said, have meant to the farmer lower cost fertilization, improvement in ease of handling, higher quality products, special usage fertilizers and increased consumption.

To the industry they have meant making higher analysis goods and a change from an art to a true chemical industry. The new developments have led agronomists to an increased emphasis on fertilizers, more work on soil types and into a widespread research effort to test fertilizers, Dr. DeMent said.

Phosphorus fertilizer used as a "starter" for corn can do an even better job if there is some nitrogen added with it. The reason is that ammonia nitrogen with the phosphate increases a corn plant's ability to take up phosphorus from fertilizer, A. C. Caldwell, University of Minnesota soils scientist, told the meeting.

Dr. Caldwell said recent research shows this holds true when ammonium comes from ammonium nitrate or ammonium sulfate and is placed next to water soluble calcium phosphate in the soil. It is equally true when the nitrogen is present in ammonium phosphate or ammoniated phosphates.

However, Dr. Caldwell added that nitrate salts mixed with calcium phosphate as a starter fertilizer will not increase phosphorus uptake. He also explained that ammonium won't increase phosphorus absorption if ammonium salts are mixed with dicalcium or tricalcium phosphates in fertilizer.

Dr. Caldwell made these findings by applying different kinds of radioactive phosphate fertilizer to soil in which corn was planted later, along with different nitrogen fertilizer applications. He then determined phosphorus uptake in plants by checking them with a Geiger counter.

Important as soil testing is, there are other things that help determine how a farmer should plan fertilizer use, according to Lee M. Day, U.S. Department of Agriculture economist at the university. He told the meeting that fertilizer does the most good when a farmer uses it to remove the "bottlenecks" from the farm business. He said that how fertilizer is used depends on the relative amounts of land, labor and funds a farmer has available.

"For example," Mr. Day said, "suppose a farmer has a big acreage and is short on labor. This means he needs to concentrate on livestock enterprises—such as hogs or cattle—that require plenty of grain, particularly corn. In this case, fertilizer is more important for corn than for any other single crop.

"If a farmer has plenty of help available but is short on land, a dairy setup is a better bet. This makes it as important to fertilize hay land as it is to fertilize corn."

Mr. Day said that in either situation, if the farmer is also short on funds, he will come out best if he fertilizes at the rate that gives the highest return per dollar spent for fertilizer. This, he explained, may not be the same rate that gives the highest return per acre.

For example, Mr. Day pointed out, in a recent university experiment, applying 200 lb. of 8-8-8 fertilizer increased net income from corn by $11.45 per acre, compared to a $19.90 increase from using 400 lb.

However, the 200-lb. rate brought $3.98 added gross income per dollar spent for fertilizer, compared to $3.07 for the 400-lb. rate. In this particular situation, the lower rate would pay off best for the farmer who has limited funds, but the higher rate would be better if there is plenty of capital available.

Dr. Paul M. Burson, university soils professor, gave a highly entertaining account of a stay he recently made in Korea. After describing and showing slides of worn out soil in that country, he warned that U.S. soil could be just as barren and unproductive in centuries to come unless good soil management is practiced.

Dr. C. A. Simkins, soils specialist, said that there were three million acres of pasture in Minnesota that could use from 150 lb. to 200 lb. nitrogen an acre annually.

Almost two-thirds (64%) of the grass lands of the state are permanently in hay or pasture. Approximately, 3 million acres of this grass land is open permanent pasture consisting of bluegrass, timothy, brome, quack and white clover species. These pastures without management and fertilization produce about ½ ton of hay per acre or have the carrying capacity of .3-.4 of a cow per acre per grazing season.

Fertilization of these permanent grass species has proven to be a highly profitable practice on dairy farms in Minnesota. Yields equivalent to 5 tons of hay per acre were obtained in 1957. Similarly, the carrying capacity of these pastures was increased from .3 cow per acre to 1.7 cows per acre. Milk yields increased from 2,000 lb. to 8,000 lb. per acre on farms using good management and fertilization, Mr. Simkins said.

Research has shown that the profitable use of high rates of nitrogen on pasture must be coupled with good herd management. Ration-A-Day or rotational grazing is a must for full utilization. Clipping of ungrazed material and the spreading of manuring after each grazing is necessary to insure maximum utilization.

Rates of fertilization which can be profitably used on permanent pasture vary with the soil and climatic conditions. Phosphorus and potash fertilizer should be applied according to soil test. Nitrogen fertilization is then accomplished by the use of split applications of nitrogen. Thirty to fifty pounds of nitrogen per acre should be applied in early spring and each time after herd has finished grazing an area or strip. The amount of total nitrogen used during a grazing season will vary from 150 to 200 lb. of N per acre.

On the basis of the cost of the fertilizer applied and the increased production obtained, an application of 100 lb. of nitrogen per acre produced an increase of approximately 2,000 lb. of T.D.N. at 75¢ per 100 lb., Mr. Simkins said. This compares very favorably with the standard costs of $1.80 per 100 lb. of T.D.N. for alfalfa-brome hay and $3.75 per 100 lb. T.D.N. for 16% dairy concentrate.

A hit of the program was a "What's New" presentation, which consisted of five minute reports by 15 University of Minnesota staff members on a wide range of subjects. This was followed by a question and answer period.

ON 25 YEAR TIME—Ralph B. Douglass, chairman of the board, third from left, synchronizes his watch with those newly presented to three Smith-Douglass sales representatives completing 25 years service. Left to right are: Douglass Freeman, Gates, N.C.; John W. Mitchell, LaGrange, N.C.; Mr. Douglass, and Ivan Bissette, Grifton, N.C. Each has sold Smith-Douglass fertilizer for over 25 years. The presentations were made at the company's home office in Norfolk, Va.

Fungus Attacking Texas Oat Fields

COLLEGE STATION, TEXAS—Reports of trouble in Texas oat fields are coming in from all sections of the state, according to Harlan Smith, Texas A&M extension plant pathologist.

Many of the reports indicate that oats are deteriorating as a result of heavy rains, but Mr. Smith pointed out there may be other causes. A chief culprit may be Helminthosporium, a seed borne fungus disease which attacks oats from the seedling stage to maturity, Mr. Smith said.

WEED CONFERENCE

(Continued from page 1)

nd to work toward its eventual era-ication within that area.

Mr. Westmoreland said that many f the farmers are "really scared," nd added that there is every justifi-ation for such a fear. Seeds of the itchweed are so tiny and numerous, e said, that their spread is almost evitable if there is any foot or heel traffic from the infested area o clean fields. Mixed with dirt and ust, the seeds, numbering in the illions from just a few plants, stick o shoes and tires to spread to other reas.

A section on weed and brush con-ol in industrial areas presented in-ormation on some of the problems aced by railroads in the control of eeds.

Under the chairmanship of Cleston . Parris, Association of American ailroads, Chicago, the group heard brief history on the development of ranular herbicides for weed control y D. W. Rake, U.S. Borax & Chemi-al Corp., Anaheim, Cal.; a talk on ighway and industrial application of ubstituted urea herbicides, by A. M. anestad, the DuPont Co., Minneapo-s; a paper on lowering roadside aintenance costs with a combination praying-mowing program, by James . Riddle, Ohio Department of High-ays, Columbus, and a paper by enry F. Hilton, Public Service Com-any of Indiana, Plainfield, Ind., on Good Application, Effective Chemi-als, Keys to Brush Control."

A. F. Bolgrien, Wisconsin Power nd Light Co., Madison, discussed ight-of-way control of brush along lectric utility lines, and William M. truve, Iowa State College, Ames, re-orted on results of current railroad eed control research at Iowa State.

A panel of railroad men outlined he problems they face in keeping ight-of-ways free from unwanted egetation. Participating in this por-ion of the program were representa-ives of a number of railway lines erving different portions of the coun-ry where a wide variety of weed roblems are confronted.

W. J. Cruse, Great Northern Rail-oad, showed slides of "before and fter" nature, illustrating how the se of chemicals applied from a spe-ially equipped railway car had com-letely controlled vegetation for more han a single season because of resi-ual properties of the materials used. he railroad also uses brush killers or applications around bridges and ther spots where this type of vegeta-ion is a problem.

C. W. Bothe, maintenance of way chemist for the Santa Fe, told his listeners that the market for weed control chemicals for railway use is larger than is generally realized. He said that four trainloads, 100 cars each, will be used for weed control this year but added that the qualifications for such products are sometimes difficult to meet. These chemicals, he said, must be non-poisonous, non-inflammable and non-toxic to workers who must handle them.

The herbicides must not harm crops alongside the railway, and this latter qualification is complicated by the fact that the Santa Fe goes through many crop areas from the Midwest to the Pacific and South to the Gulf. Lack of water facilities adds to the application problem, he said. Water tanks along the route have disappeared with the steam locomotive.

D. H. Yazell, assistant engineer for the Illinois Central, enumerated several reasons for his company's interest in weed control. Among these items were fire protection, decreasing the cost of ballasting, complying with the weed laws of some states and maintaining good relations with "neighbors" along the route.

The chemicals used for these purposes must be non-toxic both to livestock and to human beings. He said that 2,4-D is used particularly in the southern portions of the country, but other herbicides, including aromatic oils are also employed. The matter of cost, Mr. Yazell said, dictates not only how much the chemicals are used, but also whether they are to be applied rather than having crews mow weeds mechanically.

A question-and-answer period following the formal presentations brought out further facts on railroads' use of herbicides. The Santa Fe spends about $53 a mile for weed control each year, it was pointed out, and the time of application stretches from March or April on the West Coast and works eastward as the season progresses. Application schedules are made up in keeping with rainfall and harvest times in various sections, Mr. Bothe said.

Winter time is often utilized for the application of sterilants, it was noted, since melting snow can be an effective means of providing moisture.

The annual banquet was held the evening of Dec. 10, with Dr. E. P. Sylwester, extension botanist, Iowa State College, as master of ceremonies. Honorary life membership in the conference was extended to Dr. Peter John Olson, retired from the staff of the University of Manitoba and now operating farms in both North Dakota and Manitoba.

The title of outstanding extension worker in the north central area for 1957 was given to G. Don Webster, agricultural worker from Elbow, Saskatchewan, Canada, and recognition for being the outstanding regulatory worker for 1957 was given to Victor Hagberg, Worthington, Minn. Winner in the conference essay contest, in which more than 300 essays were entered, was Frank J. Fretwell, 16-year-old farm boy from Clyde, Alberta, Canada. He wins a $300 scholarship in an agricultural college.

OFFICERS NAMED

DES MOINES—Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, was named president of the North Central Weed Control Conference at the group's 14th annual meeting here Dec. 10-12. He succeeds Fred W. Slife, department of agronomy, University of Illinois, Urbana.

A. Roe Foster, Dominion Experimental Farms, Indian Head, Sask., Canada, was elected vice president to succeed Mr. Derscheid, and Dwight Lambert, Nebraska state weed supervisor, Lincoln, was reelected secretary-treasurer.

The conference announced that its 1958 meeting will be held Dec. 3-4 at the Netherland-Hilton Hotel, Cincinnati.

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6. All entries become the property of S. B. Penick & Company. None will be returned.
7. All entries must be received by December 17, 1957.
8. Winners will be notified by telegram.
9. Obtain entry blanks from your distributor or write Warfarin Contest, S. B. Penick & Company.

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Louisiana Girds for Battle Against Fire Ant

The face of an economic pest appears one way to people far removed from its depredations, and quite another way to those who observe its work from close range. The fire ant, for instance, has been written about from various distances, but seldom from "up close."

The Louisiana agricultural extension service has issued a bulletin on the fire ant and the methods undertaken for its control, written from the viewpoint of people directly affected by its presence. Here are some quotes:

"At long last the big battle against the imported fire ant has begun.

"This scourge of the South, with its fiery sting and bothersome mound, has made itself public nuisance No. 1 in many parts of Louisiana. Since it invaded the state some 10 or more years ago, it has multiplied and spread to 50 of the 64 parishes, infesting at least 3 million acres of land.

"This firmly entrenched insect-enemy cannot be routed overnight. The magnitude of the battle ahead can best be understood by taking a look at some cold, hard, financial facts.

"State and federal funds available for the imported fire ant fight in Louisiana, together with contributions that may come from property owners, will amount to no more than $1 million. It costs about $4 to treat each acre of fire ant infested land. This means it would cost $12 million to treat 3 million acres.

"To make the most gains against this foe with available money, obviously it must be used as judiciously as possible.

"Present plans call for eradication work to move in two directions: from outlying infested areas inward, and from heavily infested areas outward, until additional funds are made available for the furtherance of the program. The objective is to clean up areas completely and keep them clean as the program progresses toward complete eradication.

"Taking a leading part in this campaign will be organized committees which have been set up in 32 of Louisiana's 64 parishes. Those directing the program will conduct surveys, administer control measures and conduct all the work through the cooperation of the committees. All property owners in heavily infested areas working in cooperation with the committees expect treatment from this initial appropriation. Some will have to bide their time until additional funds are made available.

"In areas to be treated under the current federal-state-local imported fire ant eradication program, close cooperation is called for because the pest is a tough foe.

"Officials of state and federal agencies who will direct the battle are girding for a long, hard, uphill fight to wipe out this insect enemy. The battle can be won with well-thought-out, well-organized community action."

NPK Debate Heard Again in Industry

Discussions on the merits, or otherwise, of a system of basing fertilizer grade designations on the elemental rather than the present oxide basis have not been heard much of late. More important considerations such as problems of sales and profits have been a favorite preoccupation throughout the industry.

However, the former subject isn't dead yet. In a recent talk before the Soil Science Society of Florida, W. F. Price, Swift & Co., made some comments in connection with the NPK debate. He said that the issue boils down to a matter of whether the farmer, the dealer, and the fertilizer industry itself would be benefited if changes were made in fertilizer terminology.

In following his subject from that point, Mr. Price declared that there is a "notable lack of interest" by farm groups on the subject. He reminded that the proposition has come up in the legislatures of two states but none of the strong farm organizations have supported the action nor lobbied in its behalf. "I find that our own customers couldn't care less," he observed.

Farmers, he went on, are totally unaware of the "lack of simplicity, accuracy, or uniformity" that would be obtained under the elemental system. What they are interested in, he said, is getting the economic benefit out of the fertilizer they buy, whether it is called 7-7-7 or 7-3-5.

A dealer, trying to explain the change to farmer customers would become "completely frustrated," Mr. Price said. "The farmer has never bothered himself with oxides and elements, and doesn't want to," he said. "All he has had time for in his busy and productive life has been to check the numbers 4-10-7, 9-9-9, 4-12-12, as quoted in the extension bulletin, or farm papers, or hammered on year after year by the county agent . . . If the elemental change became a reality, the farmer would think we didn't know what we were talking about. In the confusion that would be bound to remain for years until the new basis is universal, the old basis completely a thing of the past, he would certainly lose faith in us all."

Mr. Price seems to have a strong argument here, although there are some who would not go all the way in agreement. However, his summary seems to provide a forceful ending when he reminds that a mere change of language will not increase our production, knowledge, nor prosperity.

"Might I suggest that this profitless problem of nomenclature be shelved?" he asked. "There are so many other important projects to work on . . . to concentrate on the needed development of knowledge and research in the agricultural field, and to disseminate that knowledge and results of research, rather than muddying up the waters with an excursion in semantics."

Earth Still Dependable As Source of Food

Upon looking over the USDA's annual yearbook for 1957, devoted to the subject of "Soils," the reader is reminded that the topics discussed therein are of interest not only to farmers and agricultural scientists, but to everyone who depends upon the produce of the soil for his daily food. And that's everyone.

It's not a far-fetched statement at all to say that our continued existence depends upon wise management and conservation and maintaining fertility of soil resources.

Amidst the current excitement and preoccupation over possible conquest of new planets, atom-powered rockets, and various species of satellites, some thoughtful people are expressing the hope that we won't forget and neglect the planet we already have. Looking wistfully toward the conquest of space and interplanetary travel at the expense of allowing our own earthly progress to slow down, recalls the fable of the dog and his bone. This storied pooch, walking across a bridge with a bone in its mouth, saw his reflection in the water and in trying to snatch the bone he thought he saw, managed only to lose the one he had.

The USDA Yearbook, Soil, goes a little into the history of soil management and other phases of the subject to make interesting reading. It is a good volume to read when one wishes to get his mental feet on the ground.

Croplife's Home Office

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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

Jan. 8-9—Twelth Annual Wisconsin Insect Control Conference, Loraine Hotel, Madison, Wis.

Jan. 21-22—Michigan Insecticide & Fungicide Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Jan. 22—Minnesota Aircraft Sprayers Short Course, University of Minnesota, St. Paul campus.

Feb. 4-5—Kansas Insect & Weed Control Conference, Williams Auditorium, Kansas State College, Manhattan.

April 13-15—Sixth Annual California Fertilizer Conference, California State Polytechnic College, San Luis Obispo, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

EDITOR'S NOTE — The listings above are appearing in this column for the first time this week.

Dec. 18-19—Shell Nematology Workshop, Drayton Hall, University of South Carolina, Columbia, S.C.

Dec. 19-20—Missouri Soil Fertility Short Course, University of Missouri, Columbia, Mo.

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 8-10—Northeastern Weed Control Conference, Hotel New Yorker, New York, R. J. Aldrich, Rutgers University, New Brunswick, N.J., Secretary.

Jan. 9-10—Mississippi Insect Control Conference, State College, Miss.

Jan. 13-14—National Cotton Council of America, twentieth annual meeting, Westward Ho Hotel, Phoenix, Ariz.

Jan. 13-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 14-15—Georgia Plant Food Educational Society, Annual Meeting, University of Georgia, Athens, Ga., Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, Ga., Secretary-Treasurer.

Jan. 14-16—Nebraska Fertilizer, Machinery and Chemical Exposition, Sponsored by the Nebraska Fertilizer Institute with the Nebraska College of Agriculture, Pershing Auditorium, Lincoln, Neb.

Jan. 20-21—Pest-O-Rama, sponsored by the Alabama Association for Control of Economic Pests, Coliseum, Montgomery, Ala., W. G. Eden, P.O. Box 626, Montgomery, Ala., Secretary-Treasurer.

Jan. 21-22—North Carolina Pesticide School, College Union Bldg., North Carolina State College, Raleigh.

Jan. 21-22—Illinois Fertilizer Industry Conference, University of Illinois, Urbana, Ill.

Jan. 21-23—California Weed Conference, San Jose, Cal.

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U. S. Steel Corp.

Velsicol Chemical Corp.

MEETING MEMOS

8-9—Twelth Annual Wisconsin sect Control Conference, Loraine otel, Madison, Wis.

21-22—Michigan Insecticide & ngicide Conference, Kellogg Cen-r, Michigan State University, ast Lansing, Mich.

22—Minnesota Aircraft Sprayers ort Course, University of Minne-ta, St. Paul campus.

4-5—Kansas Insect & Weed Con-ol Conference, Williams Auditor-m, Kansas State College, Man-

ll 13-15—Sixth Annual California rtilizer Conference, California ate Polytechnic College, San Luis bispo, Sidney H. Bierly, 475 Hunt-gton Drive, San Marino 9, Cal., eneral Manager.

DITOR'S NOTE — The listings ve are appearing in this column the first time this week.

. 18-19—Shell Nematology Work-hop, Drayton Hall, University of outh Carolina, Columbia, S.C.

. 19-20—Missouri Soil Fertility hort Course, University of Mis-ouri, Columbia, Mo.

. 7-8—Texas Fertilizer Confer-nce, Texas A&M, College Station, exas.

. 8-10—Northeastern Weed Con-rol Conference, Hotel New York-r, New York, R. J. Aldrich, Rut-ers University, New Brunswick, .J., Secretary.

. 9-10—Mississippi Insect Control onference, State College, Miss.

. 13-14—National Cotton Council f America, twentieth annual meet-ng, Westward Ho Hotel, Phoenix, riz.

. 13-15, 1958—Weed Society of merica and Southern Weed Con-erence, joint meeting, Peabody otel, Memphis, Tenn.

. 14-15—Georgia Plant Food Edu-ational Society, Annual Meeting, niversity of Georgia, Athens, Ga., Fielding Reed, 710 Mortgage Guar-antee Bldg., Atlanta, Ga., Secre-ary-Treasurer.

. 14-16—Nebraska Fertilizer, Ma-hinery and Chemical Exposition, Sponsored by the Nebraska Fertil-zer Institute with the Nebraska ollege of Agriculture, Pershing uditorium, Lincoln, Neb.

n. 20-21—Pest-O-Rama, sponsored by the Alabama Association for Control of Economic Pests, Colise-um, Montgomery, Ala., W. G. Eden, P.O. Box 626, Montgomery, Ala., Secretary-Treasurer.

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- **Retail Dealers selling fertilizer, farm chemicals and other farm supplies; Custom Sprayers, Pest Control Operators, and Nurserymen**
- **Farm Advisor Group—county agents, agriculture department officials, extension and experiment station personnel, soil conservation men, bankers and consultants**

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